

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

An Illustrated Record of Mining, Metallurgical, Railway, Financial, Industrial, And Engineering Progress.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper and for Transmission Abroad.]

No. 3165—Vol. LXVI.

LONDON, SATURDAY, APRIL 18, 1896.

PRICE..... SIXPENCE.  
BY POST, £1 4s. PER ANNUM.

**A. CORNFORTH AND CO.,**  
STOCK BROKERS AND MINING SHARE DEALERS,  
15, NEW BROAD STREET, LONDON, E.C.

BUSINESS IN ALL CLASSES OF STOCKS AND SHARES—  
SPECIAL BUSINESS in KAFFIR, WEST AUSTRALIAN  
and all Mining Shares. Prompt Delivery made a special feature.  
Mining Circular free on application.

**ASSAY OFFICE AND LABORATORY.**  
**B. KITTO'S,**  
10 and 31, ST. SWITHIN'S LANE, LONDON, E.C.

ASSAYS MADE OF ALL ORES. ANALYSES.  
ASSAYING TAUGHT.

**E. HENRY DAVIES, F.G.S.,**  
CONSULTING MINING ENGINEER,  
GREAT WINCHESTER STREET, LONDON, E.C.

Author of "Machinery for Metalliferous Mines,"  
Joint Author of "Metalliferous Mines and Mining,"  
undertakes the INSPECTION and MANAGEMENT of MINES at home and  
abroad, and the introduction of approved Properties to Capitalists.  
Minerals of all descriptions purchased in large or small quantities.

**W. PELLEW HARVEY,**  
F.C.S., M.Fed.Inst.M.E.,  
MINING ENGINEER AND METALLURGICAL CHEMIST,  
VANCOUVER, BRITISH COLUMBIA.  
A.C.C. and Moresing and Neal's Codes. Cable: "Analysis," Vancouver.

Government Examiner under the Bureau of Miner's Act.  
Mining Agent of the Cassel Gold Extracting Company (Limited), Glasgow.  
Ten Years in British Columbia, and for several years at Swansea and Redruth.  
Information supplied to Syndicates at moderate terms.

**MINERAL PROSPECTING**  
**AND**  
**BORINGS FOR WELLS.**

Large Experience. Quick Speed. Work Guaranteed.  
APPLY TO  
**VIVIAN'S BORING & EXPLORATION CO.,**  
(LIMITED)

**WHITEHAVEN**  
Deepest Borehole in England (3195 feet) put down by this Company  
who have completed about 56 miles of boring.  
Telegraphic Address: "DIAMOND, WHITEHAVEN."

**PUMPING MACHINERY.**

See Illustrated Advertisement every Third Week.

**HATHORN, DAVEY and CO., LEEDS.**

NOW READY.  
**GOLD MINING:**  
BRIEFLY DESCRIBED,  
WITH HINTS TO INVESTORS,  
AND AN  
APPENDIX ON THE COLONIAL GOLD FIELDS  
By RICHARD J. MIDDLETON,  
F.G.S., ETC.  
PRICE ONE SHILLING.  
LONDON:  
Middleton's Mining Agency, Broad Street House, E.C.

**CANNOCK CHASE COAL BY CANAL**  
**AND RAILWAY.**

THE COMPANY SEND COAL BY RAILWAY in Trucks to all  
Stations, and load Canal Boats at their extensive Wharves on the  
Birmingham Branch of the Birmingham Canal, adjoining the Colliery  
at Hednesford Basin, Cannock. For Prices, apply to

**J. NEWLAND BROWN,**  
WARWICK CHAMBERS, CORPORATION STREET,  
BIRMINGHAM.

London Office: 9 and 10, Southampton Street, High Holborn, W.C.

**GOLD ASSAYING, &c.**

ENTLEMEN having only a short time at their disposal can  
obtain SPECIAL INSTRUCTION in ASSAYING ORES of all  
kinds. For Prospectuses, &c., apply to

**MARTIN and PETHYBRIDGE,**  
ASSAYERS, &c., LABORATORY AND TESTING WORKS,  
183, KING'S ROAD, CHELSEA, S.W.

Complete Analysis of Constituents of any Ore from £1 1s. to £2 2s.  
Gold assays conducted with CHEEK, 7s. 6d. PER SAMPLE.  
GOLD ORES PRACTICALLY TESTED BY STAMP BATTERY  
And other processes.

**J. GRANT MACLEAN,**  
STOCK AND SHARE BROKER, STIRLING, N.B.  
TELEGRAPHIC ADDRESS—"BONDING, STIRLING."

Clients supplied gratis with Price Lists and Prospectuses explaining  
the whole system of dealing in Shares.  
REFERENCES ON APPLICATION.

Refers to his Share Market List on page 577 of to-day's Journal.

**GEORGE GREGORY AND CO.,**  
STOCK AND SHARE DEALERS,  
LONDON, MANCHESTER, LIVERPOOL, BRIGHTON, HASTINGS.

Every Investor and Speculator, before operating, should read  
Gregory's "Hints to Speculators," 420 pages, Ninth Edition,  
Illustrated. Gratis and post free on application to

**GEORGE GREGORY & CO.,**  
STOCK AND SHARE DEALERS,  
HEAD OFFICES:  
Nos. 3 AND 4, TOKENHOUSE BUILDINGS, LOTHBURY, BANK OF  
ENGLAND, LONDON, E.C., and BRANCHES.

**ASSAY OFFICE AND ORE TESTING WORKS.**

**JOHN D. WARREN,**  
(Late HERBERT R. EDWARDS)  
**BERKLEY GROVE WORKS,**  
BERKLEY ROAD, CHALK FARM, N.W.  
Gold and Silver Assays, 7s. Cyanide, Amalgamation,  
Chlorination, or Concentration Tests, including Assays, £1 each.  
Assays made of all Ores.

**INSTITUTE OF MINES AND FORESTS**  
**OF BRITISH GUIANA.**

Incorporated under the Local Ordinance 22 of 1890,  
For the PROTECTION and DEVELOPMENT of the  
MINING AND FOREST INDUSTRIES OF THE  
COLONY.

PRESIDENT—Mr. GEORGE GARNETT (Member of the Legislature)  
VICE-PRESIDENT—Mr. HUGH SPROSTON, Junr.  
Head Office—GEORGETOWN, DEMERARA.

Official information respecting the Gold Industry and the  
Forests' Products of the Colony will be supplied on application  
to the Secretary.

**BRITISH GUIANA AND THE NEW GOLD**  
**INDUSTRY.**

**BRITISH GUIANA BANK.**

Incorporated by Ordinance of the Governor and Court of Policy of British  
Guiana 11th November, 1895.

Confirmed by the Queen in Council, 8th October, 1895.  
SUBSCRIBED CAPITAL..... \$1,400,000 | PAID-UP..... \$925,520  
RESERVE FUND, \$288,000

CHAIRMAN: Mr. HUGH SPROSTON, JUN.  
HEAD OFFICE: GEORGETOWN, DEMERARA.

MANAGER: GEO. W. LANE. | ACCOUNTANT: F. A. CONYERS JUN  
BRANCH OFFICE: NEW AMSTERDAM, BERBICE.

AGENTS: [London..... Smith, Payne, and Smiths,  
New York..... Maitland, Phelps, and Co.  
British North America Bank of British North America.  
Newfoundland..... Bank of Nova Scotia, St. John's.

Current Accounts opened in accordance with the usual practice of Bankers.  
Money Received on Deposit on Interest. Bills of Exchange negotiated.  
Letters of Credit issued by London Agents on Demerara free of charge.  
Raw Gold Purchased or Shipped on Consignment.  
Bills Collected and every other description of Banking Business transacted.

**THE BANK OF AFRICA (LIMITED).**

ESTABLISHED 1878.

Head Office, 113, Cannon Street, London.

SUBSCRIBED CAPITAL..... £1,575,000

Paid-up, £459,000; Reserve Fund, £287,500

General Manager—JAMES SIMPSON, Cape Town.

BRANCHES

Alwal North, Cape Town, Cradock, East London, Grahamstown, Kimberley  
King Williams Town, Oudtshoorn, Fears, Fort Elizabeth, Queen's Town  
Bathurst, Bloemfontein, Fauresmith, Harrismith, Ladybrand, Winburg  
Durban, Newcastle, Pietermaritzburg, Barberton, Johannesburg, Klerk-  
dorp, Pretoria, Vrijheid, Beira, Delagoa Bay, Bulawayo, Salisbury.  
The Bank issues drafts, makes telegraphic remittances, buys and collects bills  
and conducts all kinds of banking business.

Deposits received on terms which may be ascertained on application.  
E. G. DAVIS, Secretary.

ESTABLISHED 1851

**BIRKBECK BANK**

SOUTHAMPTON BUILDINGS, CHANCERY LANE, LONDON.

TWO-AND-A-HALF per CENT. INTEREST allowed on DEPOSITS repayable  
on Demand.  
TWO per CENT. on CURRENT ACCOUNTS on the minimum monthly  
balances, when not drawn below \$100.

**SAVINGS DEPARTMENT.**  
For the encouragement of Thrift, the Bank receives small sums on Deposit  
and allows interest monthly on each completed £1.  
The Birkbeck Almanack, with full particulars, post free.

FRANCIS RAYNESCHOFF, Manager.

**R. C. CAMPBELL-JOHNSTON.**  
(OF SWANSEA, INDIA, AND THE STATES).

FOUR YEARS IN BRITISH COLUMBIA.

**MINING ENGINEER AND METALLURGIST**

POSTAL ADDRESS: BOX 40, VANCOUVER, B.C.

CABLE ADDRESS: CAMPBELL-JOHNSTON, VANCOUVER.

A.B.C. CODE.

MINES EXAMINED AND REPORTED ON, DEVELOPED

AND MANAGED.

Furnaces, Mills, and Mining Plants Planned and Erected.

**ORES BOUGHT AND SOLD.**

**CHARLETON AND CO.,**

A. G. CHARLETON, A.R.S.M., F. W. GREY, A.R.S.M.,

**MINING ENGINEERS AND MINE MANAGERS,**

undertake Inspections and Reports and the Design of Mining and

Milling Plant of all kinds.

Dashwood House, 9, New Broad Street, E.C.

Cable Address: "Ingressio." Bedford McNeill and Broomhall's Codes.

**DONALD CLARK, B.C.E., M.E.,**

**BAIRNSDALE, VICTORIA,**

Director of the North Gippsland School of Mines (which has the

most perfect Gold-testing Machinery in Australia).

REPORTS ON MINES AND MINING PROPERTIES.

Gippsland a Speciality.

**JAMES H. HACKET, Mining Engineer,**

Is PREPARED to INSPECT and REPORT on MINING

PROPERTIES IN WESTERN AUSTRALIA.

Address: J. H. HACKET,

Telegraph Office, Kurnellie, Western Australia.

**ALBERT H. HALDER,**

Consulting Engineer, F.R.I.B.A., Memb. Fed. Inst. M.E.,

Memb. Am. Inst. M.E., Memb. Austrian Inst. C.E., and Archts.

**GENERAL MANAGER.**

**LEMOCHDALE (Rhodesia) DEV. CO. LTD.**

REPRESENTATIVE CIVIL ENG. EXPL. SYND.

5, COTTHALL BUILDINGS, LONDON, E.C.

Telegraphic Address: "HALDER." Bulawayo

Postal Address: P.O. Box 126, Bulawayo.

MINING BUSINESS MATTERS:

A.B.C. Code, Fourth Edition: Bedford McNeill; Moresing and Neal

OFFICES:

**JOHANNESBURG, LONDON, and PARIS.**

**APPLEBY'S HANDBOOK OF MACHINERY.**

By C. J. APPLEBY, M.Inst.C.E.

New Edition, entirely re-written, with numerous Illustrations and

Prices. The Sections now ready relate to (1.) Prime Movers (Engines,

Turbines, &c.), (4.) Machine Tools and Accessories (5.) Mining

Colonial, and Manufacturing Machinery. Cloth, 3s. 6d. each Section.

MINING MACHINERY separately, cloth, 2s. 6d.

E. and F. N. SPON, 125, Strand, London, W.C.

**ASSAYING AND ORE DRESSING.**

**MESSERS. HENDERSON AND SON, M.I.C.E.,** Civil and Mining

Engineers, Truro, Cornwall, have VACANCIES for THREE

PUPILS under their Assayer, Mr. T. Graham Martyn, A.R.S.M.

The course would cover a period of 12 months, and embrace

instruction in the assaying of Gold, Silver, Lead, and other ores; in

the properties and metallurgical treatment of the commoner Metals

and Alloys; and in the Cornish methods of Dressing Ores, which

last Mr. Martyn has had special facilities for mastering.

Opportunities will be afforded these particular pupils of joining

from time to time Messrs. H. and Son's own students for instruction

in practical Mine Surveying, Mapping, &c., and of thereby gaining

a most desirable acquaintance with mining operations as a whole.

Dated 13th April, 1896.

807 pp. Royal 8vo., Well Bound in Cloth, 21s.

**McNEILL'S**

**MINING AND GENERAL TELEGRAPHIC CODE,**

Containing over Forty-four Thousand Phrases.

By BEDFORD McNEILL, F.G.S., &c., Mining Engineer.

"Undoubtedly the most complete technical code existing."

Industries.

LONDON: WHITEHEAD, MORRIS & CO., LTD., 9, Fenchurch St., E.C.

CAPE TOWN: E. R. MORRIS and Co., 13, Burg Street.

AUSTRALIA: Adelaide, Perth, Broken Hill. E. S. Wigg & SON.

NEW YORK: The Scientific Publishing Company. Price, \$7.50.

**FOR SALE, the following low-priced Shares:**

200 African Gold Conces- 200 Waldens Fnd, 4s 10 Associated Gold

sions, 1s 6d 50 Polberr, 7s 6d Mines, 25s

200 African Coal, 3s 9d 200 Tokotas of Hauraki 200 St. Augustine, 10s

110 Rand Roddeport, (S.F.P.), 4s 6d 200 Lashon Berlyn, 7s

2s 6d 300 ditto (3s paid), 3s 9d 200 Western Witwaters-  
200 Drakewalls, 1s 2000 Lomas, 8d rand, 41 3s  
400 Hiba Queen, 4s 6d 500 Colons, 7d 1000 New Elshorne, 20s

Apply, W. SEWARD and Co., 7, Drapers' Gardens, W.C.  
Telegraphic Address: "SEWARD, London."

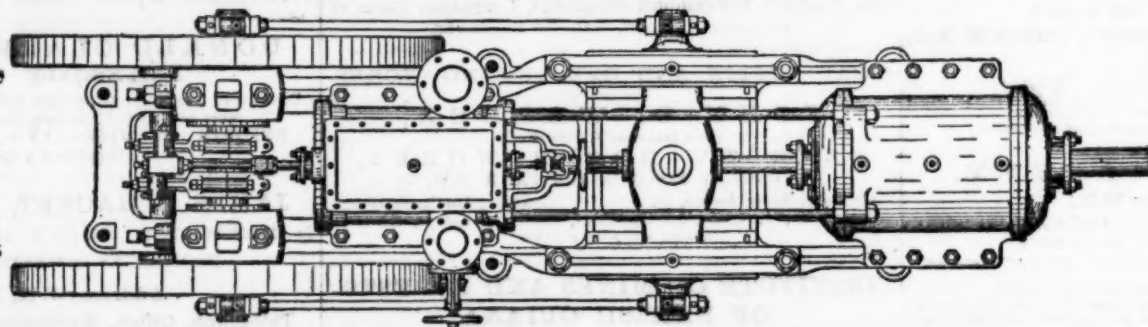


INDEX TO ADVERTISEMENTS.

(THOSE WITHOUT NUMBER OF PAGE DO NOT APPEAR IN THIS ISSUE.)

	PAGE		PAGE		PAGE
Appleby, Bros. ....	481	Handbook of Machinery	481	Davis, Henry	481
Austin, J. B. ....	481	Mineralogist	481	Davis and Son	485
Australian Gold Recovery Company	481		481	Daw, A. and Z.	510
Bank of Africa, (Ltd.)	481		481	Deits Metal Co. (Ltd.)	512
Blake and Knowles (Limited)	481		481	Easton, Anderson, and Gooden	511
British Guiana Bank	481		481	Elliman, Sons, and Co.	509
Bennett, Sons, and Co.	481		481	Epps and Co.	509
Birkbeck Bank	481		481	Evans, Joseph and Sons	483
Bowen-Scott and Western	481		481	For Sale	508
Bute Works Supply Company (Limited)	481		481	Fontaine Company	512
Business Cards—				Francis and Jenkins	482
Baxter, W. H.	508	Stonebreaking Machinery	508	Fraser and Chalmers (Ltd.)	510
Commins, R. E.	508	Aerial Ropeways	508	Frictionless Engine Packing Company	510
Clarkson-Stanfield Concentrator (Ltd.)	508	Dry Concentration	508	Gates Ironworks Co.	510
Charleston, George J.	508	Tube Maker	508	Gilkes and Co.	512
Davis and Son	508	Mining Instruments	508	Green, G.	484
Davis and Sons	508	Mining Machinery	508	Gregory, G., and Co.	481
Fraser and Chalmers (Ltd.)	508	Rock and Ore Breaker	508	Griffin and Co.'s Publications	481
Gates Ironworks Co.	508	Turbines	508	Haakon, James H.	481
Gilkes and Co.	508	Magnetic Ore Separators	508	Haider, Albert H.	481
King, Frederick J.	508	Mining Machinery	508	Harvey, Julius and Co.	481
Kraus, F. M., F.G.S., F.L.S.	508	Mining Machinery	508	Hathorn, Davey and Co.	481
Larnuth, Thomas, and Co.	508	Water Cartridges, &c.	508	Harvey, W. Fellow	481
Nobel's Explosives Co. (Ltd.)	508	Metal Perforators	508	Henderson and Son	481
Pool, J., and F.	508	Engines and Ore Crushers	508	Holloway's Ointment and Pills	481
Robey and Co. (Ltd.)	508	Rock Drills	508	Holman, Bros.	485
Schram and Co.	508	Coal Washing Machinery	508	Howes, S.	510
Sheppard and Sons (Ltd.)	508	Asbestos	508	Hughes, T. Vaughan	481
United Asbestos Co. (Ltd.)	508			Humboldt Engineering Works Co.	481
Campbell-Johnston, R. C.	481	Mining Engineer	481	Huntington, Professor	481
Cannock Chase Colliery Company	481	Coal Exporters	481	Ingersoll-Sergeant Drill Co. of America	482
Cassell Gold Extracting Co. (Ltd.)	481	MacArthur-Forrest Process	481	Institute of Mines and Forests of British Guiana	481
Champion Rock Borer Co.	481	Rock Bore	481	Jones, J. A.	481
Charleston, A. G.	481	Mining Engineer	481	Kitto, B.	481
Clark, Donald	481	Mining Engineer	481	Krupp Grusonwerk	481
Clarkson-Stanfield Concentrator (Ltd.)	481	Dry Concentration	481	Lambert's Wharfage Company	481
Companies and Legal Announcements	481			Larnuth, T., and Co.	481
Clayton and Shuttleworth	481	Engineers	481	Maclean, J. Grant	481
Cornforth and Co.	481	Share Dealers	481	Marsden, H. R.	481
Cotton Powder Co. (Ltd.)	481	Explosives	481	Martin and Pothybridge	481
Cris and Gerlach	481	Publishers	481	Merton and Co.	481
Curtis and Harvey	481	Gunpowder Manufacturers	481	Middleton, Richard J.	481
				Mining Engineer	481
				Mining, &c., Instruments	485
				Rock Drills	510
				Rock Metal	512
				Mining Machinery &c.	511
				Embrocation	509
				Cocoa	509
				Pumps	483
					508
				Copper Works Ladies	482
				Mining Machinery	510
				Engine Packing, &c.	510
				Rock and Ore Breaker	510
				Turbines	512
				Ore Dressing Machinery	484
				Stock and Share Dealers	481
					481
				Mining Engineer	481
				Consulting Engineer	481
				Mining Machinery	481
				Pumping Engines	481
				Mining Engineer	481
				Mining Engineer	481
					485
				Rock Drills and Compressors	510
					481
				Mining Engineer	481
				Mining Machinery	481
				Instruction in Assaying	481
				Rock Drills and Compressors	482
				Institute of Mines and Forests of British Guiana	481
				Mining Engineer	481
				Assay Office	481
				Ore Extraction Machinery	481
					486
				Mining Machinery	481
				Share and Iron Broker	481
				Stone Breakers and Ore Crushers	481
				Assay Laboratory	481
				Aluminium	484
				Mining Agency	481

INGERSOLL-SERGEANT  
PISTON INLET COLD-AIR COMPRESSORS.



A. E. W. GWYN,  
AGENT.

TELEGRAMS:  
"ENYAM, LONDON."

A HIGH DUTY AIR COMPRESSOR. STEAM OR BELT ACTUATED.  
DUPLEX CORLISS AIR COMPRESSORS. DIAMOND and PROSPECTING DRILLS.  
THE INGERSOLL-SERGEANT DRILL CO., 114A, QUEEN VICTORIA ST., LONDON, E.C.  
Write for Catalogue.

MAKERS OF ALL CLASSES OF IMPROVED  
MINING, MILLING, SMELTING, CONCENTRATION, AND  
LEACHING MACHINERY.  
HIGH-CLASS CORLISS STEAM ENGINES WITH  
EFFICIENCY GUARANTEED.  
BOILERS. PUMPS. ROCK DRILLS. DIAMOND DRILLS.  
COMPRESSORS. PERFORATED METAL.  
FINE CRUSHING ROLLS.  
RIEDLER PUMPS AND COMPRESSORS.  
SCHWABER SUPERHEATER.  
PELTON AND TURBINE WATER WHEELS.

HOISTING ENGINES

OF BEST MODERN DESIGN.

Direct-Acting or Geared, Flat or Round Rope Drums.  
COMPOUND ENGINES

OF SPECIAL DESIGN FOR HIGH DUTY.

Cornish Pumps

FOR ANY DEPTHS, SIMPLE OR COMPOUND.

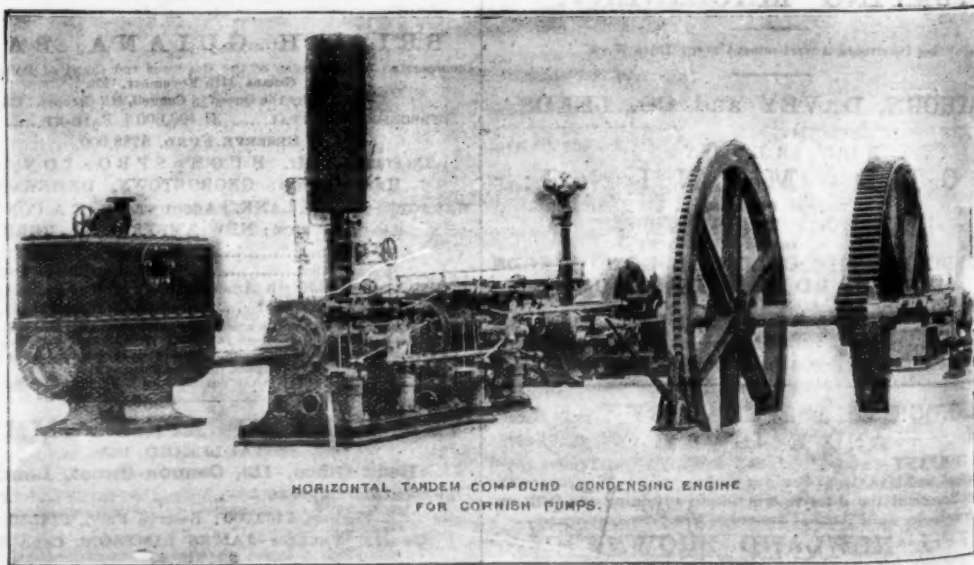
WORKS:

ERITH, KENT.  
CHICAGO, ILL., U.S.A.

OFFICE:

43, Threadneedle Street,  
LONDON, E.C.

FRASER AND CHALMERS, LIMITED.



HORIZONTAL TANDEM COMPOUND CONDENSING ENGINE  
FOR CORNISH PUMPS.

THE WESTERN DAILY MERCURY.

The Paper for News.  
The Paper for Advertisements.  
The Paper for the People.

THE WESTERN WEEKLY MERCURY

The Paper for the Household.  
These Journals have an enormous circulation throughout Devon  
and Cornwall, and are conveyed by specially chartered trains.  
OFFICES: PLYMOUTH.

LIVERPOOL JOURNAL OF COMMERCE

Is the best FINANCIAL and COMMERCIAL PAPER  
in the Provinces.  
Is now Enlarged to Eight Pages.  
Contains more Commercial and Shipping News than any other  
Morning Paper.  
Proprietor, CHARLES BIRCHALL, 32, Castle Street, Liverpool  
LONDON OFFICE.—38, GRACE CHURCH STREET.

THE INDIAN and EASTERN ENGINEER

AN  
ILLUSTRATED WEEKLY JOURNAL  
FOR  
ENGINEERS IN INDIA AND THE EAST.

The INDIAN and EASTERN ENGINEER contains the latest and  
authentic information on all subjects connected with Engineering  
in India and the East.

Correspondence invited on any subject which may be of interest to the  
profession.  
RATE OF SUBSCRIPTION (payable in advance, including a copy of the  
INDIAN and EASTERN ENGINEER'S DIARY, and postage):—  
Indian Rates. English Rates.  
Yearly .....Rs. 20 | Yearly.....£5

Published at 137, Canning Street, Calcutta.  
London Office: 28, Victoria Street, Westminster, S.W.

W. F. STANLEY

Mathematical Instrument Manufacturer  
To H.M. Government, Council of India, Science and  
Art Department, Admiralty, &c.

MINING, SURVEYING AND DRAWING  
INSTRUMENTS

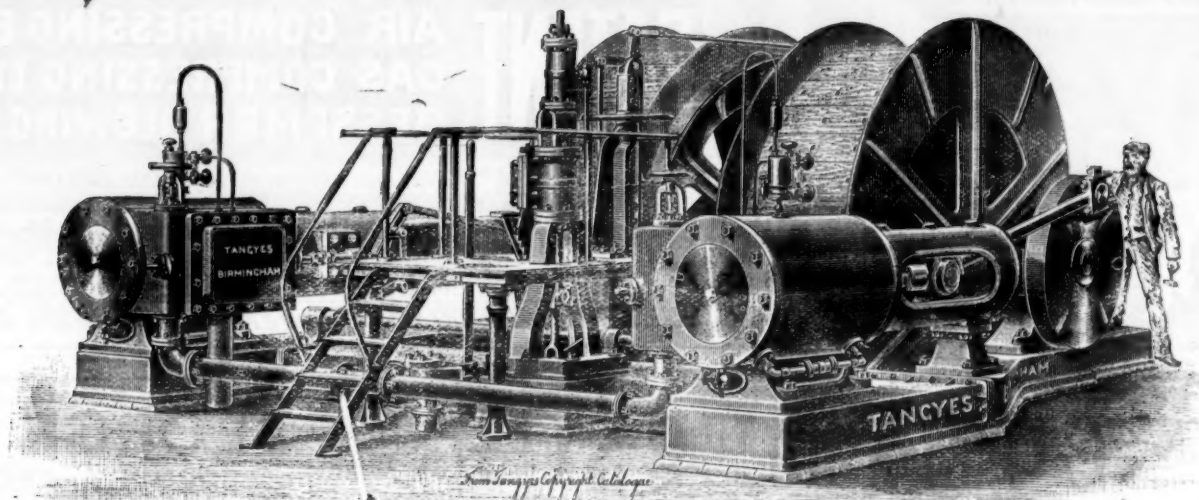
OF EVERY DESCRIPTION, OF THE HIGHEST QUALITY  
AND FINISH, AT THE MOST MODERATE PRICES.  
Price Lists post free.

Address—Great Turnstile, Holborn, London, W.C.

GOLD MEDAL, Inventions Exhibition, 1883  
Mining 1890



# TANGYES' COUPLED WINDING ENGINES.



From a Drawing of a Pair of Coupled Winding Engines, having Cylinders 18 inches diameter by 36 inches stroke, and fitted with Steam Reversing Gear. Drums 8 feet diameter—one being loose on shaft and fitted with clutch. The whole is carried on a strong Cast Iron Base Plate, in the centre of which is a Wrought Iron Platform for Engineman, the necessary Levers for working the Engines being placed in convenient positions upon the same.

QUOTATIONS ON RECEIPT OF NECESSARY PARTICULARS OF DUTY AND STEAM PRESSURE.

## TANGYES LIMITED, Birmingham.

AND AT

London, Newcastle, Manchester, Glasgow, Cardiff, Sydney, Johannesburg, Bilbao and Rotterdam.

Telegrams—TANGYES, BIRMINGHAM.

No. 860.

# JOSEPH EVANS & SONS,

Telegrams:

"EVANS," Wolverhampton.

Nat. TELEPHONE, No. 7039.

TRADE



MARK.

Write for

"MINING PUMP" Catalogue.

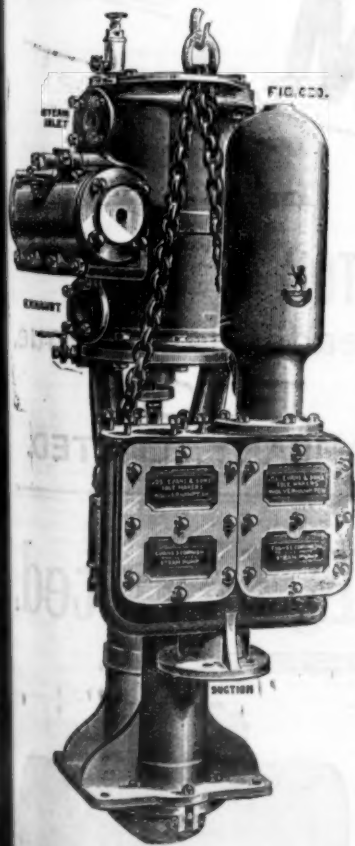
## SINKING PUMPS FOR MINES.

NO TAPPETS, LEVERS, OR EXTRANEIOUS GEAR.

"EVANS & TONKIN'S" Patent "CORNISH" SINKING PUMPS have been used on all the recent modern sinking operations of importance, including North's Navigation Collieries, the Blackwall Tunnel, the Barry Dock Extension, the Griff Colliery Sinkings, the Coppice Colliery, the Fishley Colliery, the Moss Hall Colliery, the North Walbottle Colliery, and other large Sinkings, also the Rand, Western Australian, Victoria, South America Gold Mines, &c., &c.

London Office  
16, UNION COURT, OLD BROAD ST.,  
E.C.

DEPOTS:  
NEWCASTLE-ON-TYNE,  
GLASGOW, WAKEFIELD,  
MANCHESTER,  
CARDIFF, and BELFAST.  
JOHANNESBURG.  
Etc.

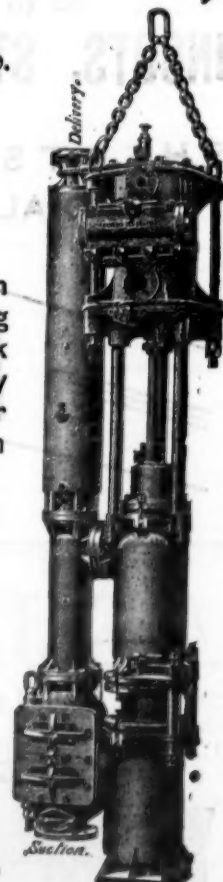


"GRIF" PATTERN  
"CORNISH"  
SINKING PUMP



FIG. 875, "FLUOMETER"  
PATENT STEAM VACUUM  
PUMP.

"CORNISH" PUMPS.  
"DUPLEX" PUMPS.  
"WALL" PUMPS.  
"RAM" PUMPS.  
"TAR" PUMPS.  
"HORSE" PUMPS.  
"POWER" PUMPS.  
AIR COMPRESSORS, &c.



"STRAIGHT-LINE"  
PATTERN  
SINKING PUMP.

# WOLVERHAMPTON.



**WALKERS' PATENT INDESTRUCTIBLE VENTILATING FANS FOR MINES, TUNNELS, &c.**  
 CONSTRUCTORS OF THE VENTILATING MACHINERY AT THE SEVERN AND MERSEY TUNNELS.

**PATENT ANTI-VIBRATION SHUTTER**  
 Applicable to all enclosed Fans

**BROTHERS**

**Engineers, Pagefield Ironworks, WIGAN.**

**WALKER PATENT** AIR COMPRESSING ENGINES  
 GAS COMPRESSING ENGINES  
 BESSEMER BLOWING ENGINES

upwards of 400 of the above now AT WORK indicating in the aggregate 150,000 Horse-Power

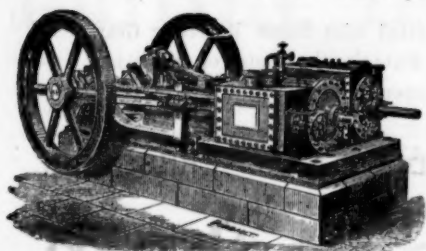
**Fisher & Walkers' Patent Friction Clutch & Underground Haulage Machinery**  
 THIS CEARING IS NOW EXTENSIVELY IN USE FOR HAULAGE PURPOSES. \*

*The objects attained are SIMPLICITY, ENDURANCE OF THE MACHINERY AND ROPES with a MINIMUM EXPENDITURE OF POWER.*

## AIR COMPRESSORS

With Compound Air and Steam Cylinders,

Fitted with SCHRAM'S Inlet and Outlet Valves giving the greatest efficiency.



### SCHRAM'S IMPROVED Rock Boring Machines.

Supplied to the Indian, Colonial, and other Governments.  
 2500 IN USE in all PARTS of the WORLD.

#### DIAMOND PROSPECTING DRILLS.

#### "OPTIMUS" COMPOUND ROCK DRILL.

(P. J. OGLE'S PATENT.)

Consumes 40 per cent. less Compressed Air than any other Drill at the same time giving the most effectual results.

ESTIMATES AND FULL PARTICULARS ON APPLICATION.

**RICHARD SCHRAM & CO., 17a, Great George Street, Westminster, S.W.**

TELEGRAMS: "SCHRAM, LONDON," A1, A.B.C. and The Engineering Telegraph Codes Used.

## GEORGE GREEN, FOUNDRY, ABERYSTWYTH.

SILVER MEDALS AWARDED AT THE ROYAL CORNWALL POLYTECHNIC, 1872 & 1876; GOLD MEDAL AWARDED AT THE GREAT INTERNATIONAL MINING EXHIBITION, CRYSTAL PALACE, 1890.

ONLY AWARDS GIVEN FOR CONCENTRATION PLANTS.

### GREEN'S LATEST IMPROVED Self-Acting or Automatic Ore Dressing Machinery.

A Special Plant, on a reduced scale, has been erected at the Works by which samples of METALLIC ORES up to Five Tons may be treated, and the commercial value determined. In this way the most suitable arrangement of Plant is ascertained, a considerable advantage to intending Purchasers of Crushing and Concentrating Plant.

**GOLD STAMP AND OTHER MILLS.**  
 Estimates, Catalogues, and Full Particulars on Application.

Telegrams—Green, Foundry, Aberystwyth.

## For PURE ALUMINIUM

98 to 99½ per cent. (98 per cent. minimum guaranteed) in

### INGOTS, STICKS, & ROLLING SLABS;

ALSO FOR

SHEETS, &c., AND FERRO-ALUMINIUM.

# ALUMINIUM.

APPLY TO

**HENRY R. MERTON & CO.,**

2, Metal Exchange Buildings, Leadenhall Avenue,

**LONDON, E.C.**

AGENTS FOR THE BRITISH ALUMINIUM COMPANY, LIMITED.

## A. & J. STEWART and CLYDESDALE, Limited.

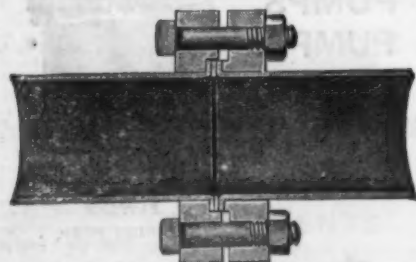
**Glasgow, Coatbridge, and Mossend.**

WROUGHT IRON WELDED TUBES and FITTINGS for GAS, WATER, and STEAM.  
 Light Lap-welded Wrought-iron and Steel Tubes  
 (SPECIALLY ADAPTED FOR MINES).

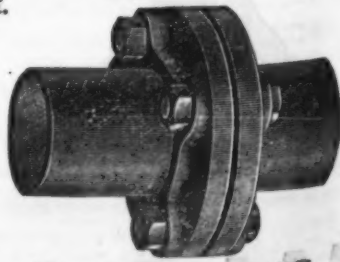
With Patent Flanged Joints (as illustrated) for the Conveyance of Water, Steam, and Air, at High and Low Pressures.

LAP-WELDED IRON AND STEEL BOILER TUBES  
 FOR LOCOMOTIVE, MARINE, AND OTHER MULTITUBULAR BOILERS.

**STEEL & IRON PLATES FOR BOILERS, BRIDGES, &c.**



SECTION OF PATENT FLANGED JOINT



PLAN OF PATENT FLANGED JOINT

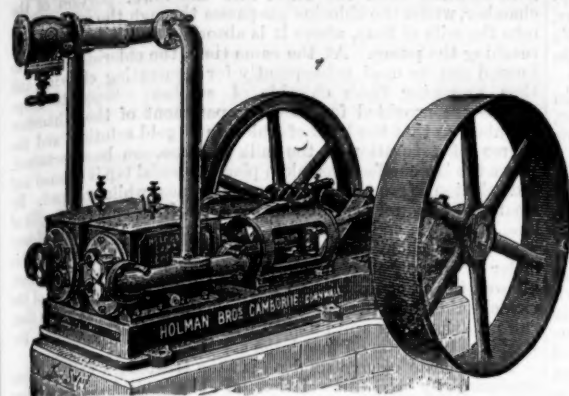
Head Offices: **41, OSWALD STREET, GLASGOW.**



# HOLMAN Bros., Camborne, Cornwall.

ESTABLISHED 1839.

**Patentees and Sole Makers of**  
**"THE CORNISH" ROCK DRILL and "THE CORNISH" COMPRESSOR.**



FIRST  
SILVER MEDAL,  
Highest Award,  
Mining Institute  
Contest, 1881.

Three Makers  
represented.



FIRST  
SILVER MEDAL  
Highest Award,  
Royal Cornwall  
Polytechnic  
Jubilee Exhibition  
Contest, 1882.

Five Makers  
represented.

AWARDED SILVER MEDAL INTERNATIONAL  
INVENTIONS EXHIBITION, 1885.

## RECORD OF WORK DONE

At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour

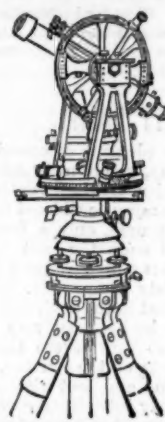
At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE 46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

Estimates for **ROCK BORING PLANT** and **GENERAL MINING MACHINERY** on Application.

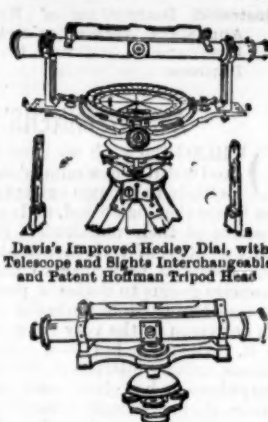
London Offices: 7 and 9, LEADENHALL BUILDINGS, E.C.

# JOHN DAVIS AND SON.

ALL SAINTS WORKS, DERBY;  
118, NEWGATE STREET, LONDON.



Transit Theodolite with Patent  
Hoffman Tripod Head, and  
Trough Compass.



Dumpy Level with  
Hoffman Patent Tripod Head.

**MINING, SURVEYING, AND  
ENGINEERING INSTRUMENTS.**

**THEODOLITES. LEVELS. TACHEOMETERS.**

**Davis's Improved Hedley Miners' Dials, with  
HOFFMAN PATENT TRIPOD HEAD;  
AND ALL DESCRIPTIONS OF MATHEMATICAL AND  
MINING SURVEYING INSTRUMENTS.**

Revised Illustrated Catalogues Free to any Part the World.  
SECTION (A) MATHEMATICAL DEPARTMENT AND SAFETY LAMPS  
SECTION (B) ELECTRICAL DEPARTMENT.

Gold Medal Awarded Mining Exhibition, 1890.  
A. B. C. CABLE CODE, 4TH EDITION.

**AWARDS: CRYSTAL PALACE, 1890; TASMANIA, 1891; KIMBERLEY, 1892.**

# CONCENTRATION.

**The Clarkson-Stanfield Ore Reduction Co. (Limited).**

In the **CLARKSON-STANFIELD** process of Concentrating Refractory and Complex Ores no water is required; dust is reduced to a minimum; the loss of Mineral through water-borne Slimes is obviated.

**OUTPUT  $\frac{1}{2}$  TO 2 TONS PER HOUR, ACCORDING TO SIZE OF MACHINE.**

CONCENTRATOR TO BE SEEN IN OPERATION AT THE COMPANY'S ONLY ADDRESS,

**6, COLONIAL AVENUE, MINORIES, LONDON, E.**

The Machine is superior to Sieves for Sizing Homogeneous Substances, such as Emery, Sand, and Powders, and may be used to great advantage in the preparation of Ochre.

N.B.—The owners of the Carndochan Mine, near Bala, North Wales, will, by arrangement, show their **CLARKSON-STANFIELD** plant working on a Refractory Low Grade Gold Ore.

## NEW PATENTS.

LIST OF APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

- 100 Oscar Frolich, 23, Southampton Buildings, Chancery Lane, London.—Process and apparatus for the extraction of metals from their ores by means of chlorine gas.—March 20.
- 101 Arthur Henry Truolove, 5, Freckleton Street, Revue, Blackpool.—Reversing gear for oscillating steam engine.—March 21.
- 102 George Francis Gabriel Des Vignes and Stephen Harding Perry, 70, Chancery Lane, London.—Improvements in and relating to steam generators and motors for road carriages and other purposes.—March 21.
- 103 Ulrich Wilhelm Ammann, 115, Cannon Street, London.—Improvements in beater drums of machine for breaking coal and the like.—March 21.
- 104 James O'Brien, 111, Hatton Garden, London.—Improvements in mine trap doors.—March 31.
- 105 Frederick Lamplough, 59, Broad Street Avenue, London.—Improvements in pumps water, motor water meter, steam engines and the like.—April 1.
- 106 Samuel, 13, Buckingham Street, Strand, London.—Improved safety gear for mining cages and other lifts.—April 1.
- 107 Charles Horace Benton, 46, St. Michael Road, Headingly, Leeds.—An improvement in governing gear for steam engines.—April 1.
- 108 Thomas Pattison and Thomas Slater, 111, Hatton Garden, London.—Improvement in and relating to valves for steam hammers, &c.—April 1.
- 109 John Thomas Calow, Bank Buildings, George Street, Sheffield.—Improvements in apparatus for the prevention of accidents from overwinding at pits and mines.—April 1.
- 110 Hugh Robert Ross and John Butler, 5, Bank Street, Manchester.—Improvements in self-adjusting clip for stentering and breathing.—April 1.
- 111 Arthur George Parock, 8, Lord Street, Liverpool.—Improvements in governing devices for steam and other engines.—April 2.
- 112 John Joseph Butcher, Box 131, Post Office, Thompsonville, U.S.A.—Concentrator.—Improvements in steam boilers.—April 9.
- 113 C. H. G. Little, Hockington, Lincolnshire.—Improvements in means for controlling and measuring the power of steam, gas, or other engines and shafts.—April 9.
- 114 Louis Hyattus d'Iszara, 1, Mookenburg Square, London.—Improvements in steam engines.—April 4.

## SPECIFICATIONS PUBLISHED.

1004 James, steam boilers, April 4, 1896; 7197, Weatherly, petroleum engines, April 4, 1896; 8518, Yates, steam traps, April 4, 1896; 8588, Smith, boiler tubes, April 4, 1896; 9172, Foster, steam engines, April 4, 1896; 14,465, Powell, boiler and furnace, April 4, 1896.

The above specifications published may be had of Messrs. Rayner and Co., 37, Chancery Lane, London, at 10d. each, including postage.

**GERMAN COALS FOR ENGLAND.**—A member of a well-known shipping firm writes to the *St. James's Gazette* to say that it is within his knowledge that German coal is actually being shipped for England. This further instance of the progress which Germany is making in competing with this country is certainly rather startling. The correspondent has it on the best authority that charters are being concluded to bring Westphalian coal from Duisburg, Hochfelden, or Berthel on the Rhine to London. The answer to the question how such competition can be explained is very simple. The German State railways carry coal for export at a nominal rate, and the carriage thus saved acts exactly as a bounty on export.

## JOINT-STOCK COMPANIES.

### NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

- Mount Hepburn Gold Mine (Limited).**—Registered April 1 by Travers, Smith, Braithwaite, and Robinson, 4, Throgmorton Avenue, E.C. Capital £200,000, divided into 200,000 shares of £1 each. Objects: To adopt and carry into effect an agreement expressed to be made between Thos. Ryan and A. John Miller of the one part, and this company of the other part providing for the sale to this company of certain mining leases and property known as Mount Hepburn and Mount Hepburn South, situated at Tongol West, North Gippoland, in the colony of Victoria; to acquire any other mines, mining, water, and other rights, grants, leases, claims, concessions, protected areas, alluvial deposits, forests, &c., and to carry on the business of a mining, smelting, and metallurgical company in all or any of its branches; to construct, maintain, and work rail and tram roads, wharves, pier canals, gas, electric, and water works; as farmers and graziers, stock raisers; to acquire and turn to account any patents, to lay out towns and villages, and promote immigration thereto, &c. The first directors—of whom there shall not be less than three nor more than seven—are to be elected by the signatories. Qualification, 250 shares. Remuneration—Chairman, £200; ordinary directors, £200 each.
- "Hesperus" Gold Mining Company (Limited).**—Registered March 31 by Jordan and Sons (Limited), 120, Chancery Lane, W.C. Capital £100,000, divided into 100,000 shares of £1 each. Objects: To adopt and carry into effect an agreement expressed to be made between E. M. Arthur of the first part, and this company of the second part, for the acquisition of certain mining leases, &c., situated at or near Kuman's, on the East Coolgardie gold field, West Australia; to develop, work, and turn to account the same in such manner as the company shall see fit, and to carry on the business of a mining, smelting, and metallurgical company in all or any of its branches; to acquire and deal with any lands, estates, farms, forests, &c., in such manner as the company shall deem expedient; to construct, maintain, and work rail and tram roads, telegraph and telephone systems; as dealers in live and dead stock; to carry on in all their respective branches the business of producers of gas, electricity, and the general business of a water supply company; as textile manufacturers, dealers in tobacco, drugs, petroleum, &c.; as carriers by land and sea, farmers and graziers, builders and contractors; to transact all kinds of agency business; to negotiate loans; as bankers, financiers, company promoters, stock and share dealers, &c.
- Komati Exploration Company (Limited).**—Registered March 31 by Minet, Paring, Smith, and Co., 81, Cannon Street, E.C. Capital £100,000, divided into 100,000 shares of £1 each. Object: To adopt and carry into effect an agreement expressed to be made between Peter Coulson Dunn of the first part and this company of the second part; to acquire any mines, mining, water and other rights, grants, leases, claims, concessions, options of purchase, metalliferous land, &c., in South Africa or elsewhere, to develop and turn to account the same in such manner as the company shall see fit, and to carry on the business of a mining, smelting, and metallurgical company in all or any of its branches; to lease, settle, improve, colonise, and cultivate lands and hereditaments in South Africa by clearing, planting, &c.; as stock raisers; to lay out towns and villages, and promote immigration thereto; to construct and maintain rail and tram roads, canals, wharves, &c.
- African and Colonial Mining and Industrial Syndicate (Limited).**—Registered March 31 by A. Doubie, Mitre Court, Fleet Street, E.C. Capital £250,000, divided into 250,000 shares of £1 each. Object: To enter into an agreement with F. H. H. Nickson to acquire any lands, mines, &c., in Africa or elsewhere, and to develop the resources and turn to account the same in such manner as the company shall see fit. Table A mainly applies.
- Unionist Gold Mining Syndicate (Limited).**—Registered April 2 by W. H. Barrett, 2, Pancras Lane, E.C. Capital £100,000, divided into 100,000 shares of £1 each. Object: To enter into an agreement made March 24, with W. Adams, for the acquisition of a certain mining property situated in the Marchion district, West Australia, to develop and work the same, and to carry on the business of a mining and smelting company in all its branches. Registered without articles. Registered office: 2, Pancras Lane, E.C.

## CONTRACTS OPEN:

**FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.**

\*We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given.

The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

### HOME CONTRACTS.

**Fuel.** April 20 (*Hedley*).—Tenders for the supply of fuel wood to the 3rd Battalion Gloucester Regiment during their training at Hedley, commencing about June 1, will be received at the Headquarters Office, Devonport, until noon on 10th inst. Forms of tender and any further particulars can be obtained on application to the Assistant-Adjutant General B. Headquarters Office, Devonport, or to the Officer commanding the corps at Hedley.

**Culvert.** April 21 (*Abergavenny*).—For the construction of a culvert and watercourse in the Fenwold, intended for the new school buildings for Governors of King Henry VIII's Grammar School at Abergavenny. Plans and specifications may be seen and bills of quantities obtained at the office of the architect, Mr. E. A. Johnson, Abergavenny.

**Railway Works.** April 21 (*Newbridge and Crumlin*).—For works in connection with the construction of a new addition line of rails between Newbridge and Crumlin, including the excavation of earthwork near Abergavenny, for the Great Western Railway Company. Plans and specifications may be seen and forms of tender and bills of quantities obtained at the office of the engineer at Newport station between 10 a.m. and 4 p.m. Tenders addressed to Mr. G. K. Mills, secretary, Paddington Station, London, and marked outside "Tender for Works between Newbridge and Crumlin, &c." will be received on or before 21st inst.

**Railway Construction.** April 21 (*Usk, Mon.*).—For the construction of the remaining portion of the East Usk Railway, near Newport, a length of about 2½ miles, for the Great Western Railway Company. Plans and specifications may be seen and forms of tender and bills of quantities obtained at the office of the engineer at Newport Station, between 10 a.m. and 4 p.m. Tenders addressed to Mr. G. K. Mills, secretary, Paddington Station, London, and marked outside "Tender for East Usk Railway" will be received on or before April 21.

**Cast Iron Pipes.** April 21 (*Bedford*).—For the supply and delivery at the Bedford Railway Station of about 2400 yards of cast iron pipe, 4 inches and 8 inches diameter, for the Corporation. Specifications may be obtained at the office of Mr. T. S. Porter, Clerk to the Urban Sanitary Authority, Town Hall, Bedford, where sealed tenders, endorsed "Iron Pipes" are to be delivered by 21st inst.

**Gasholder.** April 25 (*Bangor*).—For the supply and erection of a telescopic gasholder suitable for a brick tank of 42 feet by 20 feet, for the Town Commissioners. Tenders, accompanied by specification and drawing, are to be lodged with Mr. Francis Pollock, Town Clerk, by 25th inst., endorsed "Tender for Gasholder."

**Cast Iron Pipes.** April 30 (*Belfast*).—For the supply of about 5696 tons cast iron pipes and special castings, principally of 36 inches diameter, for the Belfast City and District Water Committee, in accordance with specification and drawings prepared by Mr. L. L. Macanay, M.I.C.E. Copies of the specification, with forms of tender annexed, can be had at the Water Works Office, Royal Avenue, Belfast.

**Railway Stores.** May 6 (*Lisbon*).—For the supply to the Eoal Portuguese Railway Company at the company's station, Santa Apolonia, Lisbon, of oil and colourmen's goods, chemicals, leather, sponges, &c. Particulars at Lisbon and at the Paris Office, Rue de Chateaudun 22.

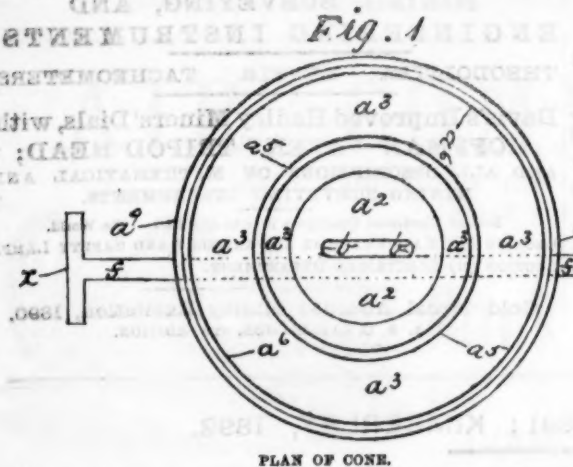


## MECHANICAL ENGINEERING: MACHINERY, MINING and RAILWAY PLANT, &c.

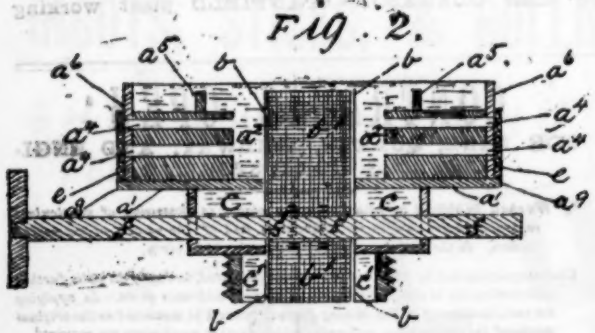
Illustrated Descriptions of New and Standard Mechanical Appliances, Accessories and Processes, adapted to Mining, Metallurgical, Railway Engineering and other Industrial Purposes.

### A NEW MINERS' SAFETY LAMP.

**D**URING the week we have had the pleasure of examining and testing a new miners' safety lamp, which, in our opinion, is likely to become extremely popular. Of the inventing of new lamps there is no end, and one is becoming bewildered in the presence of their multitude. But, of course, only a few are really worthy of serious attention, and even the best fail in some essential particular, so that there is ample scope for the inventive genius to devise a perfect safety lamp. Mr. Arthur Thomas Metcalf Johnson is one of the latest in the field, and if he has not given us the very thing we need, he has come very near to it. Already it has been submitted to very severe tests in various colliery districts in different parts of the country, and everywhere it has given every satisfaction and met with great favour, similar success rewarding its early introduction on the Continent. The result is that Mr. Johnson has been placed in possession of eulogistic testimonials, which he naturally highly prizes.



We accordingly have pleasure in introducing it, with the accompanying illustrations, to our readers. In the first place, "The Johnson Miners' Safety Lamp" is not constructed in the ordinary form of miners' safety lamps, but is the embodiment of entirely new principles. It is fitted with a perforated solid cone, situated below the base of the flame, combustion chamber, wick spindle, regulator, locking gear, and pierced bonnet shield, the air being admitted through the minute perforations, which pass through the solid cone. The air necessary to support combustion is compelled to pass through a wire gauze casing, then into and along minute air tubes, grooves, or perforations in the solid cone, thence into a combustion chamber in close proximity to the wick tube. The air, on escaping from the air tubes above mentioned, comes directly in contact with the wick flame, and is utilised in combustion; the products of the latter only escaping from the cone and passing upwards through a



a.a., air passages; b.b., wick tube; c.c., collar or thimble; d.d., gauze casing; e.e., wick spindle; f.f., serrated or cogged wheels.

sanitary chimney provided for that purpose. It is obvious that, under these circumstances, an accumulation of explosive or other gases in the interior of the lamp is impossible, as instantly the inflammable gas presents itself it is conveyed by the aerial currents through the air passages to their inferior extremities, where it is immediately ignited, causing the explosive gas to burn at the extremities, in consequence of which the necessary supply of oxygen, so essential for the support of the illuminant, is obstructed, the wick flame stifled, the small quantity of oxygen remaining in the combustion chamber rapidly exhausted, the minute flames burning at the exterior extremities of the air tubes, or passages, are suffocated, and the lamp quietly extinguished without the aid of a dangerous internal explosion. A gauze casing is adjusted over the interior extremities of the air passages, which surround the combustion chamber. One of the most essential features of this invention is the prevention of back draught.

Another advantage is that the chimney is not liable to fracture when the lamp is inclined to such an angle that the flame impinges on its surface. Moreover, it complies with all the conditions expressed by the Royal Commissioners, inasmuch as the source of light within the lamp is unable under any circumstances to ignite an inflammable mixture of fire damp and air, even when passing at a high velocity. The lamp yields a bright and steady light of two candle power, even when exposed to strong currents of air. It is simple in construction, and easily inspected when ready for use, and it is not liable to extinction if handled with ordinary care. It will be made in two weights; the one of 2 lbs. 5 ounces, when full of oil, will burn for 24 hours, whilst the one of 2 lbs. 2 ounces will burn for 14 hours. The latter is, we understand, 1 lb. lighter than any other lamp extant, whilst the lamps burn only half the quantity of oil consumed by other makes.

## COMPLETE AND CHEAP GOLD EXTRACTION.

M. DE RIGAUD'S PROCESS.

**A** PAPER was read on this subject on February 28 by M. Camille Grollet, before the Société des Ingénieurs Civils de France, and a copy thereof has been forwarded to us. As the process is novel and may have some important developments, we lay an abstract of the above paper before our readers, so that they will be able to judge of it for themselves. We naturally take no responsibility for any of the statements therein contained, which we merely reproduce.

M. de Rigaud's new process of gold extraction consists in treating the auriferous ores with chloride of sulphur, or rather, according to M. de Rigaud, with tetra-chloride of sulphur. This latter is an oily liquid of a density of 1.6, brown colour and a suffocating odour; exposed to the atmosphere it gives off abundant white fumes and boils at 144° C. It is at once decomposed by contact with water, forming sulphurous and hydrochloric acids together with a little sulphuric acid and free sulphur. The inventor has, however, discovered that when brought into contact with auriferous minerals under special conditions far more complex reactions ensue, and no sulphurous acid is evolved. There is, strictly speaking, only one true compound of sulphur and chlorine,  $S_2Cl_2$ ; this has, however, the property which forms the basis of M. de Rigaud's process, of holding an excess of chlorine in solution. It does not combine with the sulphur, but is simply dissolved in the compound  $S_2Cl_2$ , as has been proved by the interesting studies of Isambert. This seems to have been one of the points that struck the inventor—namely, the faculty that the chloride of sulphur possesses of absorbing great quantities of chlorine, thus offering the advantage in the lixiviation of gold ores, that the ore will be twice attacked—firstly, by the chloride of sulphur; and, secondly, by the excess of chlorine. The affinity of the latter element from gold is well known, and it is rendered more active by the fact the chlorine is able to act in the nascent state in the very act of being given off from its solution in the chloride of sulphur. This is the reaction that takes place when ores of gold are acted upon by chloride of sulphur saturated with excess of chlorine. It is, therefore, clear that no more powerful, more energetic, or more perfect solvent of gold exists than this chloride of sulphur, with which neither chlorine by itself nor cyanide of potassium will bear comparison.

The chloride of sulphur is simply prepared by allowing a stream of washed and dried chlorine gas to act upon sulphur heated to a temperature of 90° C., in an apparatus the temperature of which is capable of careful regulation, so as to prevent the subsequent dissociation of the chloride of sulphur, and its splitting up again into sulphur and chlorine. Under these conditions, a reddish-brown liquid distils over, which is the substance used by M. de Rigaud in his process of treating auriferous ores; he calls it, provisionally, tetrachloride of sulphur, and assigns to it the formula,  $SCl_4$ .

It is important to note the cost of producing this tetrachloride of sulphur; with one metric ton of this substance 5000 metric tons of ore can be treated. Hence to treat one metric ton of ore, 0.200 kilograms of the substance suffice. As the cost of the compound in Europe is only 150 francs (£8) per ton, sufficient to treat 1 ton will only cost 30 centimes (under 3d.)

Although the property of M. de Rigaud's process of extracting 100 per cent. of the gold present is of the highest economic importance, the first cost of the solvent is also a factor, which must not be overlooked. Of course, in speaking of 3d. per ton, reference is made only to the cost of the solvent employed; to this must be added other costs common to all processes, and their amount shall be subsequently investigated.

There are two methods of applying this process—a rapid and a slow one. The plant used for the former consists of a long drum of leaded cast-iron supported horizontally at either end; in its axis is a shaft carrying blades that acts as an agitator when revolved. The ore to be treated is introduced into the drum, and then the chloride of sulphur; the drum is closed, and the agitator set in motion. When the chloride of sulphur comes into contact with the ore, gas is evolved, the pressure being indicated by a specially-constructed gauge, so arranged that it is not injured by the action of chlorine gas. When the reaction is complete, the cylinder is by a simple arrangement made to assume a steeply inclined position; in that end of the drum which is then the lower one, a filter of lead wire supporting asbestos cloth is adapted, the object of which is to arrest all particles of the ore and only to allow the chloride of gold to escape. The latter is run off into special tanks, and the residual ore is then washed by means of a stream of water admitted into the cylinder. When washed the exhausted tailings, containing now no more gold, are removed from the drum by turning in a stream of water and by revolving the agitator, and are allowed to fall into suitably-placed tram wagons, which carry them away. This is the rapid process, and the time occupied by it is some four or five hours, not including the time required for precipitating the gold from its solutions.

The slow process, so-called, which is the true process for the treatment on a practical scale, is still incomparably more rapid than any other known at present. The plant consists of a series of reaction tanks, a pump, and an exhaustion chamber. The tanks consist of cylinders of leaded cast iron, whose height is to their diameter in the proportion of 100 to 15. They are carried by trunnions resting on bearings, so that whilst their normal position is vertical, they can be inverted when required. In the works now being built on the Tancarville Canal at Havre, each tank holds about a ton of ore, but in practice larger ones, capable of taking several tons, would be preferred. The bottom of the tanks is hemispherical, and there is, moreover, a loose false bottom consisting of a round plate pierced with numerous holes upon which an asbestos cloth is secured, so as to form a filter. An iron rod is rivetted to the centre of this plate, so that the latter can be drawn out when required; by this means, when the tank is inverted, the residual ore is rapidly and easily dragged out, and the filter being thus removed can be readily repaired in case of need. Each tank has a cover that need not, however, be airtight. The ore, which must be in the state of liquid mud, is introduced, then the chloride of sulphur, the cover is put on and the reaction commences. The chloride of sulphur acts in the first place, and then the chlorine gas completes the reactions set up by the former reagent; after this, the necessary wash water is passed through the tank.

The pump next comes into play; it is necessary that the chloride of sulphur should traverse the ore rapidly, so as to allow chlorine to come into action promptly; the former in passing through produces chloride of gold, but some gold remains unacted on, and its solution is effected by the chlorine in its nascent state, which acts with especial energy in that condition. But on account of its specific gravity the chlorine collects in the upper part of the tank, and the function of the suction

pump is to draw it down, and to make it pass through the mass to be treated. This is done by the aspirating action of the pump through a pipe that leads out from the hemispherical bottom of the tanks. Since, however, the chlorine evolved would rapidly destroy the pump if allowed to pass through it, the inventor devised his exhaustion chamber. This consists of a tank divided in the middle by a horizontal septum, pierced only by a syphon tube. The upper portion of the chamber contains milk of lime, and communicates with the suction pump. The lower division of the chamber communicates with the bottom portion of the tanks. When the pump is set to work, it draws the chloride of gold solution from the tanks into the lower portion of the chamber, whilst the chlorine gas passes through the syphon tube into the milk of lime, where it is absorbed and prevented from reaching the pump. At the same time, the chloride of lime so formed can be used subsequently for generating chlorine, and thus preparing fresh chloride of sulphur. Separate gauge glasses are provided for each compartment of the exhaustion chamber, so that the level of chloride of gold solution, and the degree of saturation of the milk of lime, can be ascertained. When the latter effect has taken place, a special tap is opened and the solution is run off, the pump being meanwhile stopped. By means of a funnel provided with a tap a fresh supply of milk of lime is run in, and the operation continues. When the lower part of the chamber is full of chloride of gold solution, this latter is run off into precipitating tanks. The pump is then allowed to act again and so on until the greater part of the rich chloride of gold solution is drawn off. Wash water is then run into the tanks and pumped through in the same way, the washings being run off into large settling tanks.

The chloride of gold solution is then treated; a little sulphur produced by the dissociation of the chloride of sulphur is sometimes found floating as flowers of sulphur on the surface of the solution. This is removed and can be used again in the preparation of a fresh supply of chloride of sulphur. To obtain the gold in the metallic state, M. de Rigaud adds sulphate of iron, which is used in excess for a purpose that will presently be seen. The liquid is allowed to stand until all the gold has settled to the bottom. The washings are concentrated by exposure to the air and then the clear solution from the precipitating tanks is run in. This solution still contains the excess of sulphate of iron, which precipitates the remainder of the gold in the wash water. To collect these last traces of gold the inventor, when precipitation is complete, syphons slowly the wash water through a series of filters, upon which the remainder of the gold precipitate is retained. The bulk of the gold is left in the form of a muddy precipitate in the bottom of the tanks. It is chemically pure, and only needs to be dried and melted in the ordinary way.

The above is the entire process. Under the action of the chloride of sulphur, a certain number of other chlorides may be formed at the same time; it is worth while examining to see what effects these may have upon the action of the process. Such chlorides as are insoluble have no further effect on the process; such, according to the author of the paper, are the chlorides of silver, bismuth, cadmium, barium, cuprous, cupric, ferric of lithium, mercurous of nickel and of lead. All soluble chlorides will pass with the chloride of gold into the precipitating tanks; some of them are not precipitable by sulphate of iron, whilst others are. The former can evidently not affect M. de Rigaud's process, and amongst these may be named the chlorides of aluminium, of platinum, and of zinc. When soluble chlorides precipitable by sulphate of iron are produced this process is inapplicable; this occurs in the case of the chloride of tin. The presence of antimony has other objections, hence M. de Rigaud does not use his process for ores containing either tin or antimony, which are, however, of rare occurrence. Neither will he apply it to such ores as contain zinc, for reasons which it is not convenient to fully specify.

A works for carrying out this process is being completed at Havre, alongside the Tancarville Canal, by the Total Gold Extraction Company. The site selected offers special facilities for getting rid of the exhausted tailings, always a difficult matter. In the present instance they will be swept out to sea, since they are completely barren, because M. de Rigaud's process extracts the whole of the gold obtained in them. These works will contain suitable ore bins, a rock breaker and crusher, the plant for the working of the process as already described, laboratory, melting furnaces, the necessary shops and a building for the manufacture of the solvent. The solvent when made passes into special storage tanks, whence it is distributed automatically to each reaction tank. If a works for treating tailings is to be erected, it will, of course, not require either rock breaker or crusher, but will be connected with the tailings dump by means of an aerial tramway. Such a plant to treat 100 tons per day will require about 100 reaction tanks, and will cover some 1000 square metres of ground. The cost of such a works, including the land, the erection, &c., may amount to 300,000 francs (about £12,000). Seeing the simplicity of the plant required, M. de Rigaud calculates its cost at less than £4000; it will, however, be as well to take the higher figure of £12,000.

The following table will show the cost of treatment of tailings by this process (prices given in francs and centimes):—

	Per ton.	Per ton.	Per ton.
	Fr.	Cts.	Fr.
Carriage by wire rope tramway:—			
One labourer to load the bucket at 10 francs	10	0	
One labourer to unload the bucket at 10 francs	10	0	
One blacksmith at 20 francs	20	0	
One wheelwright at 20 francs	20	0	
Repairs	7	50	
Labour in treatment:—			
Two labourers at the vats at 15 francs	30	0	
Two labourers at the precipitating and settling tanks at 15 francs	30	0	
One engineer at 20 francs	20	0	
One carpenter at 15 francs	15	0	
One labourer at the tailings at 10 francs	10	0	
One watchman at 15 francs	15	0	
One assayer at 20 francs	20	0	
One assistant at 10 francs	10	0	
Chemicals and supplies:—			
Chloride of sulphur			0 50
Chloride of lime and sulphate of iron			
Coal, oil, and repairs			
General expenses:—			
Office and management	100	0	
Taxes and insurance	20	0	
Various expenses	10	0	

Total cost per ton of ore .. .. . 3 30  
Say, cost of treatment .. .. . 3 30  
Purchase of tailings at 3 francs per ton .. .. . 3 0  
Redemption of capital of 300,000 francs in five years, reckoning 300 working days, and 30,000 tons per annum .. .. . 0 0  
Total, francs .. .. . 3 30  
Thus allowing, on a most liberal scale, the cost of treatment of a ton of ore, everything included will be 3 francs (7s. 2½d.). The tailings contain 10 to 25 grammes of gold to the ton (6 dwts. 13 grains to 16 dwts. 8 grains); taking the lower figure, and reckoning the gold at 3 francs per gramme, this



will give, since M. de Rigaud extracts the whole of the gold present, 30 francs, equal £1 4s., or a profit of 21 francs, equal 10s. 10d. per ton. Taking this on the 30,000 tons treated per annum it will give a dividend of 200 per cent. upon the original capital.

These surprising figures are due to two essential conditions that form the basis of M. de Rigaud's process:—  
Firstly. The entire and absolutely complete extraction of all the gold.

Secondly. The low price of the solvent, which does not exceed 4d. per ton treated.

If such results can be obtained with low-grade tailings, what would they be with ores and residues containing 1 or 2 ounces of gold to the ton?

## MANCHESTER GEOLOGICAL SOCIETY.

### SELF-IGNITING SAFETY LAMPS.

At the ordinary monthly meeting of the above society, held in Manchester, on Tuesday, Mr. ROBERT WINSTANLEY, C.E., the President, in the chair,

Mr. HENRY HALL, one of Her Majesty's Inspectors of Mines, exhibited a couple of self-igniting safety lamps, such as are now being largely used in German mines. One of these was a Wolf lamp—a German patent—and the other an ordinary Clanny lamp, both fitted with self-igniting apparatus, one of the lamps burning benzene, and the other colza oil, the igniting apparatus being equally effective in relighting either of the lamps. The igniting arrangement consists of a narrow tape, carrying on its surface, at intervals, small patches of fulminating material, this tape being fitted inside the lamp, in connection with a small shaft passing through the bottom of the lamp, similar to the prickler wire of an ordinary safety lamp. The tape passes from the bottom of the lamp up to the wick through a tooth clip, and by drawing the small shaft, which projects from underneath the lamp, quickly downwards, the fulminate on the tape is brought in contact with the teeth of the clip, and at once ignites, setting the portion of the tape projecting towards the lamp wick in flames, and then, by leaving the lamp a little on one side, this flame is brought in contact with the wick, and relights the lamp. One length of the tape is sufficient to relight the lamp from 50 to 60 times, and there is consequently no need to interfere with the apparatus for a considerable period. Mr. Hall, having experimented with the lamps to show the working of the igniting apparatus, remarked that there were objections in some quarters to placing an apparatus of that kind in the hands of a collier, as it was held by many mining engineers that when a lamp was put out through any accident it ought to be examined by some responsible person before being relighted. Against this objection, however, there were several advantages, the chief of which was that lamps were subject to being accidentally knocked out by the men employed in carrying them to and from the face and the lamp station, and there was the danger of the men continuing their work in the dark, owing to their having no means for relighting them. The view taken in Germany, where these lamps with self-igniting apparatus were in general use, was that in case of a large explosion the use of such lamps enabled the workmen who were not injured, but whose lamps would in all probability be put out, to again procure a light, which would, and had often, been the means of saving a considerable number of lives. He (Mr. Hall) thought this view of the matter was very important, as there could be no doubt that in case of an explosion a miner could scarcely be left in a more terrible position than being deprived of any means of procuring a light to help him in his escape. If it was thought unwise to put this apparatus for relighting lamps in the hands of a collier on the ground that an insecure lamp might thus be relighted, the apparatus might be so designed that it could only be operated by a fireman. Personally he did not express any decided opinion as to the advantage or otherwise of the apparatus, but thought it well worth the consideration of the mining members of the society, both as a matter of economy and of precaution. Certainly it would take away the temptation to improperly open a lamp which had gone out, and there would be a saving of the expense incurred in employing boys to carry lamps from point to point for relighting. He also understood the workmen themselves were often put to considerable expense during their day's work as things were at present, through not being able to procure a light after a lamp had accidentally gone out.

In a short discussion which followed, several Inspectors of Mines and mining engineers, who were present, expressed the opinion that such an igniting apparatus as had been shown would have to be very fully considered before it could be introduced into the mines of this country, and before it could be placed in the hands of the miners it would, in all probability, necessitate some special alteration of the present colliery rules. The general opinion, however, was that under certain conditions the colliers should have a means of relighting their lamps, such as had been shown by Mr. Hall.

**CONFERENCE OF MINERS.**—Mr. Thomas Burt, M.P., speaking at the annual conference of the Miners' National Union at Durham on Monday, said the year had passed without any great industrial crisis in the shape of a strike or lock-out. The Miners' National Union had been instrumental during the past 30 years in removing a considerable number of difficulties, and in making the miner's occupation more safe. Great attention had been paid to the question of coal dust, which intensified, if it did not produce, explosions in mines. A few months ago they were promised higher wages, if only a certain party were returned to power, but these promises had not been fulfilled so far as the miners were concerned. He did not blame the Government, but he did blame those politicians who made promises which they must know they could not possibly fulfil. He believed they could get nothing in the way of adjusting wages better than a conciliation board.

**COAL FOR USE IN STEAMERS.**—During last month the quantity of coal, &c., shipped at ports in the United Kingdom for the use of steamers engaged in the foreign trade was 817,518 tons, as compared with 700,531 tons in March, 1895, and 708,029 tons in March, 1894. In the first three months of the present year the quantity shipped for the purpose reached a total of 2,328,308 tons, as compared with 2,148,265 tons in the corresponding period of 1895, and 2,104,622 tons in the first three months of 1894.

**PIG IRON IN BELGIUM.**—A steady increase is taking place in Belgium in the production of pig iron, owing to the blowing in of new blast furnaces. Prices, however, which are now hardening week by week, will not be influenced for some time to come. During the first quarter of the year the production of pig iron in Belgium was 201,776 tons—a reduction of 21,024 tons, as compared with the first quarter of last year.

**NEW RAILWAYS IN THE RUSSIAN COAL MINING DISTRICT.**—An important extension of the Russian railway system is reported to be under consideration. It is proposed to construct a direct line between the Donetsk coal mining district and central Russia, touching Moscow. It is also contemplated to construct a line between Donetsk and Volga districts, opening up new markets for Donetsk coal.

## GOLDEN NEW ZEALAND.

### HISTORY OF THE PAST YEAR.

Statement by the Minister of Mines.

(Continued from page 459.)

#### Maerewhenua.

THE number of miners employed in this district continue about the same as they have been for some years past. There is a large area covered with auriferous wash drift, but very little of it is sufficiently rich to pay for driving out, and the quantity of water that can be brought on to command the ground to work it on the hydraulic sluicing principle at anything like a reasonable cost is very limited. The number of men, therefore, who can find profitable employment is controlled by the available water supply. During my visit to this district last year a deputation waited on me with the view of obtaining assistance towards bringing another water race on to the field from the Maerewhenua River, and I arranged to find the cost of wrought iron pipes required for syphons to convey the water across some ravines, on condition that I was satisfied that the water race, which was partially completed, was capable of conveying a fair supply of water. But I have not received any further communication from the parties who were engaged in the work, and so am unaware whether their race has been completed in accordance with the conditions or not.

The number of men engaged in mining on this field last year was 75, and the quantity of gold obtained was 1822 ounces, representing a value of £7468.

#### Mount Ida.

There are a fair number of men engaged in mining in this district, and some very rich ground has been worked, but the general average of the earnings of the miners is not large. The ground lies at so high an elevation as to preclude any mining for about two months during mid-winter, when the ground is frozen and the water in the race converted into ice.

At Naseby the miners are chiefly dependent on water from the Government water race to work their claims, and in last season—a particularly dry one—the supply of water was rather limited towards the end of the summer. The water supply at this elevation is controlled to a great extent by the quantity of snow that lies on the mountains during the winter months, and from the heavy falls of snow during this winter a good supply of water may be expected for the next season.

#### St. Bathans and Vinegar Hill.

The St. Bathans basin contains a large deposit of quartz drift, in which there are several rich auriferous layers. Over 300 feet vertically of this drift has been washed away in some of the claims, giving large returns of gold, and, deep as the workings have been carried, the quantity of gold in the drift does not seem to diminish. This line of quartz drift seems to follow near the foot of the range, and it is said to be a lacustrine deposit, where the shores of the lake were encircled by the present range of mountains. It is near the old shore-line where the rich deposits of gold-bearing drifts are found. The quartz drifts are in stratified layers, having been greatly tilted since they were laid down, and faults are now found in this deposit, just as in solid rocks. These faults can be seen in Mr. Ewing's claim at Vinegar Hill, where the old lake deposit can be closely observed, containing, as it does, an immense quantity of the vertebrae of small fishes.

Before leaving St. Bathans and Vinegar Hill, I cannot speak too highly of the enterprising manner in which Mr. Ewing has carried on hydraulic sluicing operations. The difficulties he has had to encounter time after time in opening out and working his claims, with all the most modern appliances, are worthy of the highest commendation. It is only by close attention and adopting improved appliances that poor ground can be made remunerative for working.

#### Tinker's.

The results of the gold workings in this locality show it to be one of the richest places of recent years in Otago, and although the gold returns are less than they were a few years ago, most of the claims where water is available continue to yield very good returns. A similar description of quartz drift is met with here as at St. Bathans, with rich auriferous layers through it, but a good deal of the deposit at Tinker's cannot be successfully worked on account of dipping under the toe of the range, with a great depth of loose material and heavy boulders overlying it. Here there is but very little gold, and the limited fall in the tail races is not sufficient to convey away a large quantity of coarse wash drift. This is a field where a considerable mining population will make a livelihood for many years.

Miners are working here and there in different places in the valley of the Maunaherikiu River, and in many of its tributaries. Last year some ground was opened at Manorburn, where several claims were said to yield fair returns of gold.

#### Tuapeka.

It was in this district that gold was first discovered in Otago, and the rich finds in Gabriel's, Munro's, Wetherston's, and Waitahuna Gullies, all made within a few weeks of each other, induced thousands of people from other colonies to come to New Zealand. Even now, notwithstanding that 34 years have passed since these places were opened, there are still a number of men obtaining their livelihood by gold mining in close vicinity to the early workings. It is gratifying to state that the deposit at the head of Gabriel's Gully, where men have been employed since the first opening of the field, is still continuing to yield a fair profit; I refer to the Blue Spur, where the principal workings are carried on by a company, formed with English capital, who got about 3789 ounces gold for the year's work.

It is to be regretted that many dissensions have arisen between the miners at Waipori and the farmers holding land adjacent to the rivers in the vicinity of the township of Berwick. Each class is to a certain extent dependent on the other, for the miners require supplies from the farmers, who thus get a ready market for their produce. I trust that the differences at present existing will soon be settled amicably.

Through the whole of the Tuapeka district, which includes Waipori and the lower portion of the Clutha Valley, there were 600 men employed in carrying on mining operations last year, 22,350 ounces of gold was obtained, representing a value of £90,180.

#### Clutha Valley.

There are several large companies carrying on mining operations in this valley, some by hydraulic sluicing and elevating, and some by dredging. The whole of the drifts in the Clutha Valley are nothing but a deposit of concentrated material, the light sand and mud being carried away by the waters of the Clutha River to the ocean, and leaving the denser materials behind. This river has shifted its channel at different times, and gradually cut down its present bed, where very rich deposits of auriferous wash drifts are found in many places. Indeed, there are few of the dredging machines now placed in this river which are not working the bed with success.

Dredges, as applied to mining, have not only been profitably employed in lifting the auriferous gravel from the beds of rivers, but they are also used in working the ground in flats, when the depth does not exceed 35 feet, and where the quantity of water to contend with has hitherto prevented the ground being worked by any other means, and they are likely to be largely used in this way in the future.

The bed of every tributary and stream coming into the Clutha Valley contain more or less gold; and on the Old Man Range, fronting the valley, wherever there is any wash drift containing gold, men are to be found working at different places, and making a livelihood whenever a supply of water can be obtained. A few people may still be found working at Bald Hill Flat, Buther's and Conroy Gullies, although the ground in these localities has been turned over several times.

#### Cromwell.

Both on the banks of the Clutha and Kawarau Rivers there are men engaged in sluicing the wash drifts; and, notwithstanding that Bannockburn is one of the oldest diggings in the locality, there are still a considerable number of miners employed, and a good deal of ground can yet be profitably worked if fall can be got for tailings. The available ground in the vicinity of the Pipeclay Gully channel is getting yearly less, and the construction of another channel is contemplated to enable the bed and terraces alongside Smith Gully to be worked.

#### Cardrona and Criffel.

The number of miners and yield of gold from these places have varied very little for many years. As ground was worked out, other discoveries were made, and by this means most of the miners have been kept in the locality. The most recent new discovery made is in the face of Criffel Range, where the gold is found in a very old deposit, and in similar drift to the rich auriferous wash found a few years ago in Robertson Brothers' claim on the flat. The high elevation of this range does not permit sluicing to be carried on for some months in winter, but the miners at work in this locality intend to drive an adit level into the face of the range below the depth of the present workings to ascertain the value of the deposit where it joins the schist rock. They cannot do this in an open cutting, as the face of the range keeps slipping forward. The work done here during the last two seasons has proved the ground to be fit for hydraulic sluicing.

At Criffel only a few men were employed last year, the whole of the available water being held by one party. About 75 men are employed about Cardrona and Criffel, who obtained about 1000 ounces of gold during the past year.

#### Arrow and Shotover.

There are the same number of men working in these localities as there were during the previous year, but the yield of gold last year showed a decrease from that of the former year. There are, however, large deposits of alluvial drifts, and where the auriferous wash is not overlain by a great depth of gravel in which there is little or no gold, these drifts are made to pay very well for working on the hydraulic sluicing principle. The great factor in working these drifts is water, and, although we have large rivers, they cannot in many instances be utilised owing to the great cost of lifting the water and constructing water races; and, further, in many cases the water could not be lifted from some of the principal rivers so as to be carried at a sufficient elevation to command the ground to be worked. Many of the terraces contain great depths of auriferous gravels, which will take years to work with the present supply of water.

Mining works of considerable magnitude have been undertaken in these localities. Miller Brothers have gone to a large expenditure in the construction of works to work the bed of the Arrow River at the Falls, and also in opening out ground and bringing in a water supply to work Burke's and London-derry Terraces. R. Johnston and Davis Brothers have also expended much money in opening out claims on Pleasant and Stony Creek Terraces, while other large works are to be seen on the Upper Shotover, and also at the Saw Hoy Company's claims at Arthur's Point and the Big Beach.

#### Round Hill and Orepuki.

There are a number of men engaged in mining in the vicinity of Round Hill and Orepuki, and a fair quantity of gold is being obtained. Formerly there were very few Europeans as compared with the number of Chinese at work at Round Hill, but since an English company has commenced hydraulic sluicing and elevating, the number of Europeans has considerably increased, while the number of Chinese has decreased. The ground in this locality must be very good to pay for working with the very small supplies of water available. Indeed, in many fields the quantity of water used would not enable men to procure sufficient gold to pay for their food. This English company referred to hold most of the water rights in the place, but have not sufficient water to carry on their own mining operations on an extensive scale. They are getting enough gold, however, to pay for working the ground.

At Orepuki the workings are all on a sea beach deposit, and some of the men are doing fairly well. Adjacent to the gold workings is a mining reserve, which comprises very good land, and between mining, keeping a few cattle and working their gardens, the men seem to make a fair livelihood.

#### Preservation Inlet.

Gold has been got in a good many places in this locality, Wilson's River, Coal Island, Crayfish Island, and on the main land between Preservation and Chalky Inlets. During the last year some prospecting parties were out in the ranges between Chalky Inlet and the head of Dusky Sound, but although gold was found in several places, it was not in sufficient quantities to pay for working. Very little, however, is known about this part of the country, and it has heretofore been looked on as a terra incognita. The rough and broken nature of the land, which is as yet unopened by tracks, together with the moist climate, have prevented prospecting being carried on for any great distance back from the different bays of the inlets, where provisions and tools can be taken by boats.

The quantity of gold obtained from the gold fields of Otago last year was 76,398 ounces, having a value of £308,070, while the total production since the field was opened was 5,133,985 ounces, representing a value of £20,283,482.

(To be continued.)

THE average realised price of No. 3 Cleveland pig iron for the last quarter was 37s. 2½d., an increase of 9½d. on the previous quarter. Blast furnacemen's wages advanced 1 per cent. from April 4.

**COAL IN UPPER BURMAH.**—An important discovery of coal of an excellent quality is reported from Lawkanak, a district in the Southern Shan country, and watered by the Zawgyee, a tributary of the Salween. The coal is said to lie near the surface, and the field covers an immense area.

**COAL IN WEST AUSTRALIA.**—The Government of West Australia have decided to throw open to private enterprise, subject to the usual regulations, the whole of the coal-bearing area of the Collie district. Already several syndicates have been formed with the view of acquiring leases in this rich and extensive coal field.

**ROYAL SCHOOL OF MINES.**—The Lord President of the Council has appointed Professor J. Perry, D.Sc., F.R.S., &c., to the vacant chair of Mechanics and Mathematics.



## MINING IN NEW ZEALAND.

(FROM OUR OWN CORRESPONDENT.)

## Thames Mining.

THE great event of the opening term of this year is the announcement of the successful flotation of the famous Old Queen of Beauty Mine on the London market. It is, without exception, one of the best properties that could have been offered to the British investing public, inasmuch as that it is responsible for the production of a great amount of gold in the early part of the opening of this gold field. Upon the receipt of the news of the capital being fully subscribed the greatest satisfaction was evinced on the news becoming known. It is generally conceded that the home purchasers had acquired a first-class property, and that the whole district would be vastly benefited. There is no doubting the excellence of the position occupied by the company, because they embrace a series of lode systems, and in the greater part of the area embraced the lodes are totally intact and unexplored, and where they have been operated upon they were proved to be highly auriferous. I predict a great future for this company.

## May Queen Gold Mining Company.

This company is situated to the north and west of the Queen of Beauty, and occupies a splendid position; in fact, second to none of any other mine on the gold field. The whole of the Saxon lodes await development at a greater depth. They have carried rich ore right down to the water level, where the present pumping appliances were quite inadequate to deal with the water trouble successfully, and in consequence of this it was compulsory to cease operations in that direction and confine the working of the mine to the higher levels.

An important development has taken place in the Victoria Gold Mining Company. A new reef has been intersected at the No. 1 level of the Prince Imperial section of the company's property, and the first crushing from the lode produced at the rate of 94 ounces of melted gold to the ton. This lode, in my opinion, will yield a large amount of gold, because it is trending through a section of splendid gold-bearing country, and in close proximity to rich ore shoots worked by the old Prince Imperial Company.

## Cardigan Gold Mining Company.

Within the last day or so an important development took place in this mine. A reef running out of the May Queen Company has been intersected in this company's south exploring level, which shows a large percentage of bright pyrites, with bunchy gold freely distributed through the ore. The level will be continued south with the object of intersecting the other branches of lodes trending from the Queen into the Cardigan.

The Monstairi Company are prosecuting extensive prospecting operations, and in one of these works the Ruben Parr reef has been driven upon with excellent results, strong bunchy gold can be freely seen, and it is anticipated that as these works advance a still further improvement will take place.

The Tararu Gold Mining Company are steadily working their lodes at various levels on the different sections of their mine, and the class of ore coming to hand is quite consistent in value to that mined from here previously. During the month the exceptional dry season has had the effect of causing a shortage on their water supply; in consequence, there was only sufficient water to keep 12 head of stamps employed. The balance—viz., eight head—was hung up pending the fall of rain, to swell the river.

The return this month, as will be seen, is not quite as much as that obtained last month—109 ounces retorted, and 107 ounces 17 dwts. melted gold, at 65s. per ounce; value of parcel, £347 15s.

As the company's present mill is only capable of saving 20 per cent. of the assay value of the ore, they have very wisely decided to cyanide all their ores by this system of extraction.

## Puru District.

The Para Consolidated Gold Mining Company have opened up a 4-foot reef, showing gold for a length of 100 feet as far as opened up. It is in entirely new country. The company possess a block of close upon 400 acres, and several trial tests have produced from £5 to £30 per ton. The other part of this field is quiet—at Waiomo.

It is almost an absolute certainty that Mr. French, metallurgist, will deal with this company's ores successfully. The process he has in use is calcining and leaching. Cyanide will not deal with this ore, which carries a very high percentage of copper, and the first experiments in this direction proved a failure. Subsequently Mr. French carried on a series of experiments, and now there is every promise of success.

## Waihi Gold Field, Ohinemuri District.

The various works in connection with the Waihi Silverton Company are steadily advancing, and during the month the output of general ore from the various faces in operation shows an average assay value of £8 per ton. This is an exceptional high average, and when the company's reduction works commence treating their ores (which should be about the middle of March) the tonnage of material on hand should be ample to keep the mill continuously employed. Mr. H. H. Adams, the company's manager, is pushing on with the general development of the mine, and everything points to a good future for this company.

The Great Waihi Mine is without change, with the exception that at the No. 2 level both the Martha and Welcome lodes are being driven upon, and the class of ore coming to hand is much similar in quality to that met with heretofore.

The following is a correct return of bullion won for the period:—  
WAIHI GOLD MINING COMPANY. ANOTHER GOOD RETURN.  
£11,140 FROM 3060 TONS. £13,845 TOTAL FOR FIVE WEEKS.

For the five weeks ending February 8, 3060 tons of ore were treated by the Waihi Gold Mining Company for a yield of £11,140; in addition, 2240 tons of tailings gave a return of £2405, the total yield being £13,545. Owing to the very exceptionally dry season there have only been an average of 73 head of stamps running during the period covered by the above, 17 having had to be hung up. Had the whole battery been running during the five weeks the return would have been quite £1600 more. Under these circumstances the return cannot but be considered as a splendid one with which to start 1896, not only for the total yield, but for the high average—viz., over £3 12s. 9d. per ton.

A company working with outside capital at Te Aroha has discovered an important lode on their property. The Te Aroha correspondent of the *New Zealand Herald* says:—"Very rich ore has been struck at the Premier Mine, Waiorongomai. The reef, which was 3 feet when first met with, has now widened out to 25 feet, and was formerly known as the Vulcan lode. The permanence of the find is established beyond doubt, as the prospects improve the further the lode is driven on. Some idea of the magnitude of the find may be formed from the fact that the drive is approaching the junction of the Premier and Vulcan reefs, where it is fully 100 feet wide, and on the present level gives 450 feet of backs. The property is owned by an English syndicate, represented here by Mr. Duffield. The above information is on the best authority; in fact, my informant states that the find is equal to the Martha reef at Waihi. Shares in surrounding properties have hardened in sympathy."

The Waitakauri Crow are vigorously pushing on with their reduction plant, and a commencement has been made to excavate for the Waihi Company's new reduction site.

At Karangahake, the Woodstock Company are getting on splendidly with their additional plant, and the same remark applies to the New Zealand Crown Mines Company; everything here is progressing satisfactorily.

The Tullaghan Gold Mining Company commence reducing ore about the end of the present month.

Several trial parcels of ore from new discoveries in different parts of new gold country is now being subjected to test at the Thames School of Mines; one of these from the Tarima district should give an extraction of fully £100 per ton.

## MEETINGS OF MINING COMPANIES.

## PILBARRA UNITED GOLD MINES, LIMITED.

The statutory meeting of the shareholders in the Pilbarra United Gold Mines (Limited) took place on Tuesday, at the Great Eastern Hotel, E.C., Major-General BATES presiding.

The SECRETARY (Mr. E. W. Appleton) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—As you are aware, this is the statutory meeting of the Pilbarra United Gold Mines (Limited), called in conformity with the Companies Acts. In the first instance, permit me to inform you that the whole of the properties have been transferred to, and now stand registered in, the name of this company, with a perfect title free from all incumbrances. It is not usual at meetings such as this to lay before the shareholders any very full details of business done, for, as a rule, there is very little to report, but in this particular instance, and inasmuch as this meeting has been called somewhat later than is usual, it will be a well for me, I think, at the outset, to tell you that I have a good deal of information to give you with regard to your properties. Allow me, however, with your kind permission, to briefly give you the reason for the delay in calling this, the statutory, meeting of the company. At the time the prospectus was issued, arrangements had been made for Mr. D. Richardson, whose report upon the properties appeared in the prospectus, to take over the temporary management of them. Subsequently, it was thought advisable, in your interests, that we should appoint an independent manager with whose standing and position we were well acquainted, so that we might present his independent report to you before the holding of the statutory meeting. Arrangements were, therefore, made, after some negotiations, for Captain Bickford Anthony, an engineer of great repute, to proceed to Western Australia, to take over, manage, and report upon the properties on your behalf. In accordance with these arrangements, this gentleman proceeded to Western Australia on December 13, 1895, but on his arrival at Albany he was taken seriously ill, and prevented from continuing his journey. Immediately this intelligence was conveyed to us by cable, we lost no time in entering into fresh arrangements with another engineer, also of proved capabilities and trustworthiness—namely, Mr. Lund, to leave England for the mines, and this gentleman left on February 21 last, by the *Himalaya*, for West Australia. On his arrival at Albany, he cabled us that, unfortunately, he had just missed the boat for the north-west district, and would not be able to get another boat until April 5. In accordance with our latest advice, Mr. Lund left Albany on April 5, and we expect him to arrive upon the properties within the course of a week or so, and so soon as we receive his cabled report, we shall supply the same to you without any loss of time. Having now given you a reason, and a reason which we think you will appreciate, for the delay mentioned, I will proceed to inform you shortly as to what has been done on your properties since Mr. Richardson took over their management. I may mention that Mr. Richardson is a gentleman whose credentials lead us to believe that his statements and abilities are in every way reliable, and in sending out our own engineer we had no thought or suspicion as to his capabilities and honesty of management, but as a simple act of prudence and justice to the shareholders we felt called upon to appoint a perfectly independent manager. In Mr. Richardson's report of October 7, he writes:—"I beg to report progress of operations on the Coongan Star and your other properties. First of all I may mention that 36 tons of stone raised on the Coongan Star have been crushed at the Blue Bell battery for a yield of 80 ounces of smelted gold. From the 25th to the 28th ult. I continued stripping in the place from where the stone just crushed has been raised, and I am happy to state that the lode has improved both in size and quality."

In a later report, dated November 5, Mr. Richardson writes:—"On the Coongan Star the new shaft I reported sinking on is now down to a depth of 30 feet; I struck a new reef over 2 feet wide of splendid stone, showing gold freely, which I am certain will crush over 24 ounces per ton. I have two shifts working in this shaft, and intend sinking for the original lode, which I expect to strike at a depth of about 60 feet, at which point I intend to drive levels 50 feet north and south. I consider the prospects of this lease, including the new reef, are before anything on the field at present. The rejected lease is improving, I am glad to say, every foot I sink. I am now down 46 feet; the stone at bottom of shaft is highly mineralised, and showing nice shotty gold, and prospects in mortar 1½ to 2 ounces per ton. From the damp appearance of the ground and the nature of the country, I am confident there will be no difficulty in getting a splendid supply of water for machinery, and this will be the most central part of the property. On Rejected No. 1, I started the men to bottom the other shaft, which had been sunk 24 feet, and after sinking 4 feet struck a very nice reef of about 2 feet to 3 feet wide, which will crush about 1 ounce per ton, and expect to cut the main lode at about 30 feet or 40 feet further sinking. On the Exhibition Lease I have started the men to sink an underlie shaft from the cap of the reef. Last crushing from this part of the ground went 2 ounces to the ton. Taking the whole of the properties into consideration as they stand at present, and with the machinery on the ground, I will guarantee them to pay handsomely from the start."

On November 18 Mr. Richardson reports:—"I may say there is no change in the Coongan Star worth mentioning. I have fixed a stage under the top reef, and started to sink an underlie shaft on the reef mentioned in my previous reports, to enable me to get stone which is of very good quality. On Rejected Lease: I have continued sinking on the reef; there is no change in it. It is about 3 feet wide, and showing gold freely. When this shaft is down to (say) 90 feet, and a couple of levels driven, there will be thousands of tons of quartz in backs. (Hear, hear) On Rejected No. 1 I have continued sinking in a straight shaft, very good sinking. On the Exhibition Lease I have done no work during the past fortnight. There was a great difficulty in getting miners on this field during the past month." On December 16 he again reports:—"On Coongan Star I continued sinking the underlie shaft and also driving towards the reef. The country is very soft and easy to work; the lode is about the same thickness, and I have tried some stone in mortar, and it prospects about 3 ounces to the ton. On the Rejected I have sunk further in the main shaft, and the appearance of reef in the country is greatly changed for the better. The reef is widening out, and the country getting much softer. I have been working in the north shaft, which is at the end of the north level, 65 feet north of main shaft. After further sinking on the underlie, struck good stone, about 2 feet wide, which I am satisfied will crush from 2 to 3 ounces per ton."

As you are, perhaps, aware, gentlemen, that from the middle of December until practically the middle of February, the West Australian Government granted an exemption from labour on all mines in the north-western district, and as this period of exemption is readily seized upon by the miners to desert from work and take a lengthened holiday, little or no work could be done on the properties during this period. With a view, however, of obtaining for your information the latest condition of the properties, resulting from the work done since the middle of February last, we cabled to our legal manager, Mr. A. S. Roe, of Melbourne, a gentleman of considerable repute and very high standing, to let us have a cable in time for this meeting, informing us how the mines are looking. I am glad to state that we have received a cable in answer to our request, and it is in every way satisfactory. I will now read it to you:—"Manager reports: 'Mines are looking well; have cut the vein in Coongan Star Extended; very good; have struck pay ore 18 inches, the eastern boundary of Rejected. The reserves of ore are very large; in two months there will be enough work for 30 head of stamps.' The Coongan Star Extended, is 15 acres of the new ground situated on the northern boundary of the Coongan Star, being part of the 27 additional acres which the vendor handed over to the company without any extra charge. You will remember, gentlemen, that

when the prospectus was first circulated there was a little slip therein. It was stated that the vendors were willing to give us a further 27 acres. That is the area, I suppose, between the two blocks of 53 acres. This has been transferred to us, and is now your property, making altogether 80 acres. I think, gentlemen, that I have nothing further to add. I have given you frankly the whole of the information at our disposal. We await with confidence the arrival of our manager on the properties, and, of course, will be guided by him with regard to the best means of further developing and working them for your benefit. I might, however, state it has been suggested to us by our consulting engineer, and we think with good reason, that in view of the very large property which we possess, with the great number of reefs that are upon it, together with a showing of from 2 ounces to 3 ounces per ton, which the quartz has consistently yielded, an opportunity offers itself to sell a portion of our property, after some further development work has been effected upon it, upon terms which will practically return you the greater part of the capital, and still leave you in possession of mines which will for many years to come be the means of paying you substantial and lasting dividends. (Applause.) If any gentleman has any questions to ask I shall be happy to reply to them.

Mr. C. WARREN said the Chairman had given them what was apparently a very satisfactory report, but as he was doubtless aware there had been various reports published which were very unfavourable, and even libellous in regard to that company's property. What he wished to ask was whether there was any truth in these reports.

The CHAIRMAN assured Mr. Warren that so far as the directors were aware there was no truth in the reports he referred to.

Mr. TAGGART thought it would be advisable, in view of the presence of the consulting engineer, that the shareholders should be given some information as to the water question.

Mr. THOMAS COLLINGWOOD KITTO, the company's consulting engineer said: Gentlemen—I shall be very pleased to make a few remarks as your consulting engineer. I am sorry that there are so few present, but our Chairman has gone so thoroughly into the matter with regard to our mine that it seems to me there remains very little for anyone else to say. He has brought his report right up to date, but although he has gone so thoroughly into the matter, I don't think he has gone quite so far as he might have done with regard to the extent and value of our properties. He spoke of it as a mine, as simply an ordinary mine. Well, if you look at your prospectus, you will see we have not one mine or one lease, but there are five mines and five leases, the amalgamation of which has been dictated by prudence and economy. These mines, I may tell you, have been very carefully selected in one of the great gold-producing centres of Western Australia, and they have been very carefully examined and reported on by men who not only have gained a wide experience in Western Australia, but have shown themselves to be men thoroughly acquainted with the locality in which the mines are situated. Of course these mines when the prospectus was issued consisted simply of 53 acres, but now there are 80 acres of very highly auriferous land. In all the properties very rich lodes have been discovered, containing payable ore. In fact, I have no doubt whatever in my own mind that if these properties were to be placed on the English market to-day, with a capital perhaps varying from £60,000 to £80,000—we have £50000 you must recollect—I do not think anyone would say they were over-capitalised. Of course it would be impossible to go into every detail with regard to such a run of gold mines, but I shall be very pleased to give you a general outline of the whole affair so that you will be able to form some idea of its present value, in doing so, I hope to answer my friend's question with regard to the water.

On the Coongan Star Mine a shaft has been sunk on the lode to a depth of 90 feet. From the surface all the way down the shaft has been sunk on the lode. At the bottom a tunnel has been driven north and another tunnel south, and the whole of the ore has been proved to be payable—the average is given at 2½ ounces per ton. The lode has also been proved to be payable in several other places. From an intimation received from my own private agent, the lode has not merely been proved at favourable places here and there, but by actual blasting out of at least 20 tons. Over 300 tons of ore broken from the lode gave nearly 800 ounces of gold, and surely there is something substantial in that. I do not hesitate for a moment to say that frequently properties are offered for sale in the English market that are not nearly so valuable as the Coongan Star, but are capitalised much larger. The Rejected Lease No. 2 has been proved by the sinking of a shaft to a depth of 80 feet, and from the bottom of the shaft a tunnel has been driven along the line of the lode for another 50 feet. Six hundred tons of ore, at least nearly that quantity, has been broken and sent to the mill just as it was, when the crushing produced 1½ ounces to the ton. Now, there are two other lodes, known to be highly auriferous, on this lease, and these I strongly recommend the board to explore and develop as soon as ever they are in a position to do so. I do not think there can be two opinions as to the general value of this property. With regard to the Rejected No. 1, a shaft has been sunk here to a depth from the surface of 50 feet, and the lode has been proved to be payable by a series of trial patches along the line of outcrop. The Victoria prospecting area has also been proved, and the lode right through is 5 feet in width, while 216 tons of ore on being crushed gave 1 ounce 13½ dwts. per ton. In regard to the Exhibition lease, of course, that has not been proved to the same extent as the others, but it has been proved that the lode runs through the property, and about 20 tons which were blasted out produced 25 ounces of smelted gold. Such is the character of the proved outline of the lode, and I want to know who can take exception to a series of mines of this kind in face of the small capital you have. I have endeavoured to make myself, in a few words as possible, perfectly clear as to the quantity and quality of the ore that has been extracted, and also the extent of the lode which has been laid open, and I believe you will all agree with me that if individual diggers without capital and without the necessary means to properly develop the property can achieve such satisfactory results, then surely a company such as ours ought to have no difficulty in paying handsome dividends. With regard to the machinery site and water question, Mr. Salmond tells us that the former is the better possible site we can have, while he also states that there is plenty of good water to be obtained at a very moderate depth. In a country like Western Australia this is a very important matter indeed, I think you will say, the value of which it would be impossible to over-estimate, but Mr. McGregor goes still further, and tells us that an unlimited supply can be obtained in all seasons; in consequence of which it has been estimated that if the ore produced only ½ ounce per ton it could be made to pay a dividend. I may say, to be honest and fair with you, that when I first read these statements I did think it possible, that, perhaps, that gentleman may have been a little too sanguine, but on enquiry I find he is a man of very wide experience, possessing an excellent reputation, and a man who is known to carefully weigh all statements to which he appends his signature. Consequently, Mr. McGregor is not likely to say anything unless he knew it was absolutely true. But, apart from the statement of the Chairman, you will have gathered from my remarks that the ore throughout our property averages about 2 ounces per ton, and it is well known that the gold in that neighbourhood is worth £4 per ounce. Now, for the sake of argument, we will discount these reports to the extent of 25 per cent., and even then our ore is worth £6 per ton. It is intended, if I have my way, to erect 25 head of stamps, and I do not hesitate to say that 25 ordinary stamps will crush 300 tons per week. Of course, in matters of this kind one cannot be too cautious; but it seems to me that as soon as we have 25 head of stamps in full working order our returns ought to be such as will satisfy the most exacting shareholders—in fact, if the mines turn out as they promise at present I see no reason why we should not pay very splendid dividends. With regard to the amalgamation of the property, for which the Chairman has done so much, the advantages to be derived are, of course, well known to many gentlemen. Instead of five lodes of directors we have only one, and instead of five secretaries and five offices, with the attendant expense, one will serve our purpose. When you consider also the analogous saving of the cost of mining, you



once must see that the amalgamation of these properties ought to effect a saving equal to a very respectable dividend. (Hear, hear.) I do not know that I need say any more, although, of course, I might draw a contrast between the country in which we mine and some other gold-producing countries, but, as many of you are aware, I am averse to making unfavourable comparisons of one country with another. However, considering the Transvaal, for instance, in which such a vast amount of British capital has been invested, a country which British capital alone has raised from the extreme depths of the most abject poverty to a position of affluence, paying us back with such base ingratitude, treachery, and ingratitude, we cannot feel too thankful that our property is situated in a country where there is no wily President trying to decoy us into diabolically prepared snares merely for the purpose of confiscating our properties. We can dig in search of the precious metals under the dear old flag, where none dare to make us afraid. I thank you for the way in which you have listened to me; and I will conclude by saying that while I continue to be your consulting engineer I shall be pleased to do everything for the company's interest. (Applause.)

Mr. WARREN asked the amount of the capital of the company. The CHAIRMAN said the amount was fully subscribed, and the entire capital guaranteed.

Mr. W. A. THOMPSON proposed a vote of thanks to the Chairman and directors.

The resolution was seconded, and carried unanimously. The CHAIRMAN, in reply, assured the shareholders that the board would do their very best to secure the success of the company. The meeting then terminated.

## THE MASHONLAND AGENCY, LIMITED.

The annual general meeting of the shareholders in the Mashonaland Agency (Limited) was held on Wednesday, at the Cannon-street Hotel, Mr. P. TARBUTT (the Chairman) presiding.

The SECRETARY (Mr. H. G. Sidgreaves) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—I shall not trouble you with very many remarks myself, as we have the benefit of the presence of the managing director in South Africa (Mr. Stokes), who will be able to give you from his own personal knowledge much better information about our properties than I could do second hand. I will confine myself to making a few remarks upon the report and accounts, and will then ask Mr. Stokes to give you particulars about the properties themselves. I must commence what I have to say by expressing great regret at the absence of Mr. H. E. M. Davies, who, through pressure of business, has had to retire from the board. He was the inception of this agency, and has nursed it through its infancy, and brought it to a fairly strong manhood, when he felt that he was justified in retiring and leaving the affairs in less competent hands than his own. Mr. Gervers has also had to retire through ill health; but we are keeping the seat so vacated open in the hope that he may be able to return when he gets stronger. The first thing mentioned in the report is the deal with Mr. Heinrich Hirsch, who acquired a large number of properties when he was out in Mashonaland and Matabeleland. We took them all from him, giving him 50,000 shares for them. Well, we sold a portion of one of the properties for £55,119; so that we hold the remainder for nothing and have a little in hand. I think that was a very good deal; it was one of the last that Mr. Davies did before he left the board. (Applause.) Turning to the accounts, I think there is not much that wants explanation. The reserve fund, you will notice, has been increased to £71,984 by the addition to it of the premiums received for the other 50,000 shares, the creation of which was authorised at the last meeting. The reserve is now all invested in dividend-paying concerns outside Rhodesia. The item of sundry creditors, £7552, represents the percentage of the profits which the directors get in lieu of fees, the percentage of profit due to the managing director in South Africa, the law costs, rent of offices, &c., all of which accounts have been paid. Sundry investments at cost include the shares we hold in sub-companies which we have formed, and also shares which we hold as investments. I give that information in answer to a letter which I have received from one of the shareholders. Turning to the profit and loss account, the general expenditure, which appears high, really covers five years. We have had no profit and loss account before, so that the one now presented is from December, 1890, to December, 1895, and the same applies to the general expenditure in South Africa. The net result of the year's trading has been that we have made a profit of £50,938. I notice that some unkindly critics have suggested that we have made this by gambling in Rand stocks. Well, we have not gambled in Rand stocks. The company was formed to purchase claims and properties in Rhodesia, to develop them, and, when warranted, to sell them, and the whole of the profits have been made out of those transactions. (Applause.) I now beg to move:—"That the report of the directors and the statements of accounts to December 31, 1895, be received and adopted, and that a dividend of 2s. per share, being at the rate of 10 per cent. for the year, be paid to all shareholders registered on April 4, 1896, free of income-tax."

Mr. T. RUDD seconded the resolution.

Mr. H. L. STOKES said: Gentlemen—With the information given in the report, and from what our Chairman has said, it only remains for me now to pursue the same lines as last year, when I had the pleasure of addressing you, and to confine my remarks to local matters of interest and importance, dealing especially with our own interests in Rhodesia. As you are aware, the unexpected depression ushered in with the New Year made the times unfavourable for new business, and handicapped and hung up for the time being various schemes for turning over some of our holdings into further subsidiary companies. And, again, the serious trouble now sprung upon us by the Matabele revolt has naturally emphasised the depression, and has affected, at the time being, our position and the value of our holdings; so that at this moment I can hardly address you in the same confident spirit, nor, indeed, at the same length, as I might have done only a few days ago. With your permission, however, I will endeavour to dismiss as far as possible for the moment this Matabele trouble, and will briefly add what may be necessary to the information already before you regarding our own interests and the general progress of Rhodesia during the year 1895. Regarding first of mining claims, I may say that these now amount to a total of 2021. Many of these are old workings, scattered in various parts of the country. We have done development work of many of them, and many of them are shaping well and giving good promise. Amongst the more important developments we have been working in the Abercorn district, where we have 100 claims, on which we have an option. When I was last there, at the end of last November, those claims were looking very well and giving good promise, and arrangements were made to work night and day to develop them, so that we might have something to put before you at this meeting. The unforeseen circumstances of the past few weeks, however, have stopped all cable-grams and all reporting, and we have had no further details, which, therefore, be kept for the future. Considerable time has been taken up in managing the Moonie Creek Developing Company and the Nelly and Pioneer Reefs Gold Mining Company, in which undertaking we hold blocks of shares. The results of these properties work has been vigorously pushed ahead, with the hope that some of the reefs have not turned out as well as we had hoped, while others have developed in a much more promising way than we had anticipated. Work, however, had been entirely stopped by the Matabele outbreak. On the Nelly and Pioneer reefs they had some sharp fighting, but the men have been sent back and have come to Bulawayo, while men from Moonie Creek have got into Gwelo by themselves, and there has been no trouble of any kind. Towards the end of the past year we turned over the claims we had in the Lo Mogundi district into the Loma-Mogundi Reefs (Limited), which is alluded to in the report, and in which company we get 30,000 odd shares, and the present de-

lock is alone responsible for our not having further flotations to report. Turning to farm lands, I have little to add to what is said in the report. Blocks making up the 813,000 acres are nearly all surveyed and secured. They are important, well placed, and carefully selected, and, no doubt, they will form a valuable asset, the value of which will go on increasing as the country becomes more accessible, and more particularly as the railways get into the country. I now wish to draw your attention to the stands we hold in various townships, which form a valuable asset also. The prices of these have risen considerably in the past year. For instance, in Salisbury, where we refused £400 for a stand in 1894, we were justified in refusing £1000 for the same stand last year; the value of various others has gone up in proportion. In Bulawayo prices have increased enormously. Two stands, which originally cost us £100 the pair, were valued last October at £10,000. The size of the town of Umtali and Salisbury increased very considerably during the past year, new and handsome buildings have been erected, and a large amount of money has been invested there, and a great many new schemes were on the point of being carried out when I left. Bulawayo has lately drawn attention from Umtali and Salisbury, but in the near future I have little doubt that the two latter towns will attract the money and attention which they deserve, and make rapid strides towards overtaking Bulawayo. Towards the end of last year we deemed it advisable to get an approximate idea of the value of our farm lands and stands; of course, it is impossible to value the mining claims. I have here certified schedules by sworn assessors and valuers, who took great pains and gave most moderate estimates. The details are as follows:—That in December, 1895, they valued our stands, including buildings, at £41,205, and the farm lands at £50,284, making a total of £91,489. This is their approximate value only. Over and above this, you must bear in mind that we have 2000 odd mining claims, coal areas, and various other items of less importance. With that information, and what the Chairman has told you as to the position at this end, you can form an idea of the strong position the company is in at the present time. It must be remembered that the country is still in its speculative stage. A quartz reef country such as Rhodesia must necessarily carry many risks and chances, and we do not invest money in it as a dead certainty. There must be many risks, and will be many failures; but in a country highly mineralised, as Rhodesia is, there must be many good things and some big surprises. Already some of the best things have been developed to such an extent as to perfectly justify batteries, and it is only through the recent troubles that machinery is not already on the way. Development, however, has gone so far as to put the success of these properties beyond a doubt. I mention this because in some quarters considerable doubt has been expressed as to there being payable properties in Rhodesia. In my opinion, we are dealing with a country full of possibilities, but many blanks must be drawn among the prizes. Work there has been hampered by transport and other natural and physical difficulties, which, however, have lately been greatly removed. Everyone who knows the country has full confidence in its future. One thing is essential, and that is railway communication; and it is a matter of congratulation that lines are being pushed on towards the interior. The present acute Matabele trouble came upon us quite unexpectedly. We have a very serious and grave position to face, and it must be faced and tackled with strong measures. These are now being taken, and they will, no doubt, avert the disasters which, a short time ago, were threatening our friends in Matabeleland. They have no light task before them, and some time must elapse before confidence is restored, and we are enabled to resume our ordinary lines of business. It is really only a question of time, and I hope soon to report to you from Rhodesia, to which country I am returning very shortly, that our present trouble and depression is becoming rapidly a thing of the past. (Applause.)

Mr. CHIGNELL moved an amendment that the meeting be adjourned for a fortnight in order that the directors might give the shareholders a more detailed statement of accounts. He said the present accounts gave the shareholders no details whatever, and contended that it was in the interest of the directors quite as much as of the shareholders that full details should be given, for it was well known that many other companies had come to grief because the directors had not taken the shareholders into their confidence. It would be seen that no account had been given of the receipts and expenditure during 1895. If these details were given greater confidence would be reposed in the directors, and the prosperity of the company would be assured. The details were all in the books, and could be easily extracted. The shareholders were asked to take an item of nearly £15,000 without the smallest explanation whatever, and also an item of £30,000 representing general expenses in South Africa. In the balance-sheet they showed an item of £200,000 of investments, without giving them a single detail. There was no need to publish a list; but, at the same time, he maintained that if the directors had made wise investments, no harm could come from the character of those investments being known. He had the greatest belief in the company; in fact, he had increased his holding lately, and still intended doing so, as well as in Rhodesian ventures generally, in spite of the trouble in Matabeleland. He was not at all afraid of their power in Matabeleland being lost. There was a great company, and he hoped the directors would give every attention to the development of their properties, for by so doing they would make this a most prosperous undertaking. (Applause.) He had heard some people say they would rather hold Mashonaland Agency shares than Chartered, and so would he, because they had all the Chartered Company's advantages without their responsibilities.

Mr. ROCKLEG seconded the amendment.

Mr. L. VAN BOOLEN thought that if the shareholders were informed of the securities in which the reserve account of £71,984 had been placed, they would be thoroughly satisfied with the work which had been carried out.

Mr. MICHEL wished to know whether the board intended to give its shareholders the opportunity of subscribing for shares in the concerns which they floated.

The CHAIRMAN, in reply to the discussion, said all the information was on the table for the benefit of the shareholders, but for reasons which the directors considered sufficiently good, they did not think it advantageous to publish a list of all the shares they held. They had nothing, however, to conceal from the shareholders, and he would read out the list if they wished. As regards the offering of shares in the subsidiary companies to the shareholders of this agency, the gentleman who spoke was evidently under a misapprehension. The course adopted was one which recommended itself under certain circumstances. If the directors saw that by the company subscribing the working capital themselves, having capitalised the property at a low figure, and selling the shares at from £2 to £4 each, they could ensure a dividend for the shareholders of this company, they considered they were doing as well as if they capitalised the properties at a higher figure and offered the shares to the shareholders. The result, in his opinion, had proved that they were right. One or two questions had been put to him by a shareholder in a letter. He asked whether the assets of the company figured in the accounts at cost. The answer to that was that they did, and that the cost was very considerably below the present market price. (Applause.) That shareholder then asked for details of the company's holdings in subsidiary companies, with which question he had already dealt. Further, he desired to know whether the Nelly and Pioneer Company held farms as well as mineral rights. Yes; they held four farms, and had now acquired two more—(applause)—and nearly the whole of the mineral rights were on the farms which they themselves held, one block of claims coming out beyond the edge of one of the farms.

The CHAIRMAN then gave the details of the London and South African expenditure for the five years, and promised that the details of such expenditure should be given to the shareholders in future. With regard to the investments, however, he said he could not promise that the list should be open to inspection throughout the year, as that would be inconvenient, but it was on the table at the present moment, and could be seen after the meeting. With reference to the development work, he might say

they had developed no less than 13,000 feet on the different reefs which they were opening up with the hope of floating subsidiary companies later on.

The amendment was then withdrawn, and the resolution was then put and carried unanimously.

Mr. HAWKINS moved the re-election of Messrs. Fuller and Wise as auditors.

The motion was seconded and agreed to.

Mr. CHIGNELL moved a vote of thanks to the directors, remarking that he had perfect confidence in them and in the management of the company generally.

Mr. VAN BOOLEN seconded the resolution, and it was carried by acclamation.

The meeting then terminated.

## THE GOLDEN DOVE MINING COMPANY, LIMITED (NATAL.)

The annual general meeting of this company was held at 63, Chancery-lane, on Wednesday, the 15th inst., and was numerously attended.—Mr. E. EDWARDS was in the chair.

The report and balance-sheet were unanimously adopted, after a full explanation of the present position of the company by the Chairman, who pointed out that the Golden Dove Mine was reported to be opening out exceedingly well, a large amount of work having been done, and numerous shafts and drives commenced, all of which were well spoken of, several new reefs having been discovered. The area of the company's property has been very largely increased by the acquisition of additional properties upon the run of the reef, the available length of which is now about a mile. The deep adit on the Golden Dove has been continuously proceeded with, and has now cut Scott's reef, which is reported to be good. The adit will now be continued on to cut the Golden Dove and other reefs. Ten head of stamps of the newest and best construction, together with engine and other necessary appliances, have been sent out and erected on the Golden Dove Mine, and the Chairman mentioned that a telegram to the effect that they had commenced working was daily expected. He also pointed out the comparative smallness of the expenditure, whilst the expenses of London management were unusually low, the whole cost for 14 months being covered by £211 1s. 2d. After explaining that, owing to some differences between the company's representatives at the mines, and for other reasons, it had been thought advisable to send Mr. A. E. Edwards, the secretary, to visit the mine, he mentioned that a telegram had just been received from him to the following effect:—"Do not part on any account with any shares," and he concluded by moving the adoption of the report and balance-sheet (which shows an available balance of about £5000).

A long discussion ensued, in which generally very favourable opinions were expressed as to the prospects of the company, and, after the retiring directors had been re-elected, a vote of thanks to the Chairman closed the proceedings.—(Communicated.)

## SIERRA BUTTES GOLD MINING COMPANY, LIMITED.

The 52nd ordinary general meeting of the shareholders in the Sierra Buttes Gold Mining Company (Limited) was held on Thursday, at the Cannon-street Hotel, Mr. F. TENDRON presiding.

The SECRETARY (Mr. John Saul) read the notice convening the meeting.

The CHAIRMAN, in moving the adoption of the report and accounts, said the inconvenience and delay and expense caused by the fire last September in the Whitlock Mine had materially affected the operations of the company. It unfortunately interfered with the driving of the No. 3 level, with the result that they got into very poor ore, and the mine was, during the last month, worked at a loss. However, it was some satisfaction to know that for the moment the Whitlock was really a "closed capital account." The average working cost of the mine during the six months was \$54, but he saw no reason why it should not in future be only \$5. Speaking of the recent operations, he said the vein had been followed down in the Whitlock Mine for 270 feet from the first to the third level. The second level was opened out for a length of about 400 feet, the average width being 5 feet, and the average value \$8. The value was obtained by most careful hand sampling. The other shoot, which was named after him—the Tendron—was found to be about the same size, but was barely half the value in quality. Although the shaft had latterly left the vein they had no reason to be despondent about it because it ran at a different angle. The total capital expenditure on the mine had been £10,670 so far. What the future would bring forth it was impossible for anyone to say, but it was hoped that the developments would be the means of at least recouping them for the expenditure that had been so far incurred. In regard to the Mammoth Mine, the condition of affairs here was precisely the same as when he last addressed them. At present the vein was too big, and the gold consequently too scattered to pay, and they had decided to sink another 300 feet, and ascertain whether the lode changed its character, and the gold was more concentrated. The mine, including the purchase money, had already cost them £15,086, a very low figure. They bought the property because they thought it could be worked cheaply, and if the vein improved in depth they hoped to get a small profit on the working of it. But they must remember that the vendors only said it would produce what they called \$5. In the event of a small increase in this the profit would be a big one, but if it decreased they would lose everything. Referring to the Uncle Sam Mine, he said this property had treated them very well up to lately. The shoots it was now found out did not go down—the magnificent patches of ore which they had above could not be found in the lower levels. During the six months the only satisfactory development in the mine—and that was only temporary—was in the Miner's Drift. It seemed to have gone through the best part of the ore and enabled the mine to assist in paying the dividend that would be declared that day. When this was worked out they had nothing left but the few stopes, where the ore was very poor in quality. Therefore, their hopes were centred on what might be found when the shaft was driven down to 1500 feet level. It was already down 315 feet, and the monthly report they had recently received stated that the vein, after being driven into another 18 feet, improved in appearance. However, Mr. Johns cabled on the previous day that there was no change. But they could not complain of the result of the working of the mine. It cost them £32,000, and since February, 1895, they had realised an income on it of £23,357. Of this sum, £12,302 was devoted to developing the mine, £61,000 was distributed in dividends, and £10,000 was kept in reserve. (Applause.) While his experience of deep mining in California was not a satisfactory one, he was sure that the shareholders wished the directors, in their case, to persevere with the Uncle Sam, although the value of the ore during the last six months was only 26s., as compared with 41s. 6d. in 1893. This difference affected their profits very materially. Speaking of the future, Mr. Tendron said the Butte shareholders were bound to contribute a moiety towards the cost of developing the two new mines. To do this for a time they would have to go without a dividend, and in addition would be compelled to draw on the reserve fund. They must remember that already they have received £340,903 by way of dividends. Then as regarded the Eureka shareholders they would receive a dividend of 9d. per share, but undoubtedly on the next occasion this would be reduced to 6d., or perhaps even less. But they had a strong reserve—£226,346—and had already received £513,277 in dividends. If they added up the dividends and reserves together, with what had been paid out of the reserves into the new property, they would find that the total amount returned to the shareholders had been £972,132. The Chairman concluded by referring to the retirement from the board of Mr. Russell on account of advanced age.



Mr. N. E. B. GARRY seconded the resolution, and it was carried unanimously.

The CHAIRMAN next moved that a dividend of 3d. per share be declared on the Sierra Buttes Mine.

The resolution was seconded and carried.

The CHAIRMAN also moved that a dividend of 9d. per share be declared on the Pinnas Eureka Mine.

The motion having been seconded was agreed to.

The retiring director, Mr. Charles L. Liddell, was re-elected, and votes of thanks to Mr. Johns and the directors concluded the proceedings.

### LOMA GOLD MINES, LIMITED.

An extraordinary general meeting of the shareholders in the Loma Gold Mines (Limited) was held on Tuesday, at Winchester House, for the purpose of considering resolutions providing for the voluntary winding up and reconstruction of the company. Mr. H. S. BARKER presided.

The SECRETARY (Mr. H. P. Cressey) read the notice convening the meeting.

The CHAIRMAN said that at the annual meeting, held in December last, the question of reconstruction was thoroughly threshed out, and the advisability of it was generally approved by the shareholders, subject to a report being obtained by an independent engineer. It was decided on that occasion to ask Mr. Arthur J. Russell to make a report upon the property, and on the day following the meeting the board wrote to that gentleman requesting him to do so. Mr. Russell's report had now been circulated among the shareholders, and, in his (the Chairman's) opinion, it was thoroughly satisfactory. In going to examine the mine Mr. Russell was not accompanied by Mr. Griffith, the company's representative. The directors suggested that Mr. Griffith should go with Mr. Russell and show him the whole of the mine and the points connected with it; but Mr. Griffith had written to say that as it might be thought that he, being the engineer of the company, would prejudice Mr. Russell or render his report partial, he considered it better for Mr. Russell to proceed to the mine by himself, and being merely shown the boundaries by the different employes. Personally, he (the Chairman) did not think any report was necessary, as the board had every confidence in Mr. Griffith, and thought that he, being the superintendent of the mine and thoroughly conversant with it, and having been employed in ditch work for a considerable time, must know its points better than an engineer who went casually to report on the property, however thorough his examination might be. But Mr. Russell went, and had presented his report. He confirmed what had been the directors' experience—namely, that a new ditch of such length as theirs took a considerable time to settle down, but that it was now well settled down. Then Mr. Russell went on to praise their reservoir, which, he said, contained 3,000,000 gallons of water, and had been of great assistance to the company. He suggested that another £200 spent upon it would make it even more serviceable, because in time it was liable to decay. Mr. Russell also stated that they were having the most severe drought they had experienced for a great number of years; in fact, during the past seven years he had not known anything like it. That, of course, explained why their returns during the last three months had only a little more than paid the cost of working, and had not left any substantial profit. The Tablazo Mine, Mr. Russell reported, was practically worked out. That they knew before, and they had just ceased to work that mine. A gravel mine would not last for ever, and when the company took the mine to begin with they knew it had been worked for some time previously. In the Soto Mine Mr. Russell found the monitor at work on a very promising-looking bank of gravel, and he said: "Soon there will be exposed, available for working, a bank of gravel of a length not less than 300 yards, with an average height of 50 feet of pay gravel, which represents 4800 cubic yards for every yard advanced into the bank. . . . I was very favourably impressed with the appearance of the Soto Mine, and quite believe that good profits will be obtained from this new opening." Mr. Russell did not think the Esperanza Mine so good as the Soto; but, at the same time, it was commended by the company's water, and could be mounted at a very small cost. Then Mr. Russell told them something which they did not know before, and that was that a quartz vein was appearing in the Soto Mine; he thought it looked like a gold-bearing vein, so it was possible that the company might find itself in possession of a quartz gold mine as well as the hydraulic gravel which they knew about. An important paragraph in the report ran thus:—"It is important to bear in mind that the company's water supply commands a very large area of gravel mines, amongst which there are many quite unable to obtain sufficient water for working on a large scale, except at a very large expenditure of capital, and it is natural to suppose that the company will find no difficulty in arranging with the owners to work such mines in the same manner as is now proposed for the Esperanza." He (the Chairman) did not think any gravel mine in their neighbourhood could obtain an adequate supply of water for less money than they had already expended on their ditch, which, counting also the necessary repairs to the new ditch, had cost the company something like £18,000 to the present date; so that, even if they had not another yard of gravel to wash, he thought they would be very ill-advised if they did not find sufficient money to keep their ditch; and to make profits out of it, either by selling or leasing it, or by some user of water. But they had the Soto Mine, which was likely to last for some considerable time; they had the Esperanza, and there were other mines in the neighbourhood in which they could obtain an interest. He did not think there could be two opinions about the advisability of reconstruction. As to the scheme, at the present time there were 276,544 shares held by shareholders, some of the original 280,000 shares having been forfeited. If all the new 5s. shares were taken up, and 6d. paid thereon, that would yield £6913. It was fair to assume that the holders of 200,000 shares would come in, and that would provide £5000. The liabilities of the company up to date amounted to about £1600, so that ample money would be left for working. They had no great design upon which to spend money. They had made their ditch, which was in working order, and the repairs to it were becoming less and less every month. Their mine was already mounted, and it would cost very little to mount the extension—the Esperanza—which they were going to take on lease and not pay anything for it except by way of royalty. He, therefore, thought the board would not require to call up more than the 6d. mentioned. At the same time, it would be unwise to reconstruct without leaving a certain margin, in case a good property were offered them at any time, or any exceptional outlay were considered advisable, such as bringing on fresh water. (Hear, hear.) Nothing of that kind, however, would be done without consulting the shareholders; so they might take it from him that the 6d. liability was practically all they would incur. The temperaments of the shareholders at the last meeting, and the favourable report of Mr. Russell, had led him to anticipate that there would be no opposition to the resolutions proposed. The Chairman then moved a series of resolutions, providing for the voluntary winding up and reconstruction of the company, Mr. Cressey being liquidator, and the title of the new company being the Esperanza Gold Mines (Limited).

The SOLICITOR then read the heads of the agreement.

Major BOSS seconded the resolutions.

The CHAIRMAN said he wished to add that Mr. Russell would arrive in England in a few days, and he had great hopes of persuading him to attend the confirmatory meeting. (Applause.)

Mr. RUSSELL considered that it was not right that Mr. Russell should have been appointed to report on the property, as he was connected with another of Mr. Barker's companies. His report could not be considered an independent report. In his opinion, the scheme should not be passed until Mr. Russell had had an opportunity of giving his personal opinion of the property, and he moved as an amendment that the meeting be adjourned until the 28th inst., in order to get Mr. Russell to attend.

Mr. T. H. WATSON seconded the amendment.

The CHAIRMAN, replying to the discussion, stated that the shareholders would have an opportunity of subscribing for the surplus shares. In his report, Mr. Russell said:—"In view of the above data, I have no hesitation in saying that the present property of the company, in conjunction with the Esperanza and other mines referred to, commands an area of gravel likely to last for many years working. . . . I fully expect to see a steady improvement in the returns, with the possibilities, at the same time, of large profits, which, in my opinion, will enable you to pay dividends on the reduced capital proposed—£50,000." Having made that statement, he had not the least doubt that Mr. Russell would gladly attend the confirmatory meeting and answer any questions put to him.

The amendment, on being put, was lost by 18 votes to 15, and the resolution carried unanimously.

The proceedings then terminated.

### TINCROFT.

Mr. F. HARVEY, J.P., C.O., occupied the chair at a general meeting of shareholders in the Tincroft Mines, held in the Account House, on Tuesday.

The PURSER (Mr. F. W. Dabb) having read the notice convening the meeting, stated that the committee had received 495 proxies in favour of the scheme for amalgamating the two mines under a Limited Liability company.

Mr. C. V. THOMAS, at the request of the Chairman, laid particulars of the scheme before the meeting. He said the scheme was the result of weeks of consideration, not only by the committee of Tincroft Mine, but of that of Carn Brea also, and came before them with the hearty endorsement of every member of the committees. The foundation of the whole scheme was the amalgamation of Tincroft, including the Cook's Kitchen portion, with the neighbouring mine of Carn Brea, and the united concern should be worked by one great company on the Limited Liability principle. Some had thought that each mine might have been formed into a separate company, and stood on its own legs. But he believed they would all agree that the union of the two mines would mean diminished cost and the saving of capital expenditure, besides which it would avoid the possibility of anything happening in the future whereby the collapse of one mine would imperil this section of the mining district. So that besides the financial advantage which would come from the amalgamation there would be the impossibility of any chance of collision between the two mines. It was essential to the scheme that there should be a lease for such a term and upon such a rate of dues as would induce the shareholders to subscribe a large sum of money for the development of the property. Overtures had been made to the lord, and the way the proposals of the committee had been received and considered gave them reason to anticipate that before long the shareholders would have such a lease as would cause them to say they were warranted in laying out the money. The committee were of opinion that before going to allotment a sufficient sum of money would be obtained, but in fixing the amount of available capital the committee had to decide upon a sum which would not be beyond the reach of shareholders and others who might join them, while, on the other hand, the extent of the property, and the sum that would have to be spent before the cost of production would be limited and the output increased, rendered it imperative to have a considerable amount to lay out on the property. It had therefore been considered that at least £75,000 would be required before the company went to allotment. As to the purchase money, the committee felt that there were many reasons which should lead the shareholders to accept a low purchase for their interest in the Cost-book mine. Then, with regard to the finding of the money, it was necessary for a variety of reasons that the shareholders should be willing to take upon themselves the responsibility for a large portion of the capital. It was, however, considered that, as the present shareholders had had no small drain upon their pockets, some breathing time would be beneficial to them. It was consequently proposed that the shareholders should find one-half of the money required, and should be credited with the other half, and that the latter should be paid by the company. The nominal capital of the company was £250,000, in 200,000 shares of £1 each. In Tincroft there were 6800 shares, and in Carn Brea 6000, making 12,800 in all. It was proposed to give to the holder of each share in the Cost-book mines six shares of £1 each, with 10s. credited as paid, in the Limited Liability company. That would mean the immediate allotment of 75,500 shares of £1 each, *pro rata*, amongst the present shareholders, upon which £37,500 would be credited as paid, leaving a liability of 10s. per share on each share, and that the extent of four shares for every share now held in the Cost-book company, and would also have the option of calling for one share at par within two years for every two new shares they subscribed for. For the convenience of the market and the shareholders the option calls would be transferable. If the scheme went through the resolution that day, and after that the liabilities would be met out of the capital of the new concern. (Hear, hear.) By such a scheme the present shareholders would get £1 for each of the shares now held, and would have something like £30,000 spent in Tincroft and the adjoining property before being called upon to pay anything. The expenditure of such an amount had more than once in the history of those mines meant the opening out of richer, and big dividends had been the result instead of calls. The amount for which the present shareholders would be liable on the six shares given for each share now held would be called in small instalments and at no small intervals. (Hear, hear.) The history of Tincroft and the adjoining mine was such that shareholders would be exceedingly unwise if they did not seize the opportunity now offered them to recoup past losses or receive again, as in some cases, enhanced dividends. Mr. Foster Brown, mining engineer, adviser to the Duchy and the Commissioners of Woods and Forests, had given an endorsement of the inherent values of the mines. His report was the result of most careful observations in the two mines, and of figures, plans, sections, and surveys. This gentleman told them, on the authority of his name, that the expenditure of the money which would be raised by this scheme would, in the future, even if it did not go back to the average of 45 years, but remained at a low figure, prove a highly remunerative investment. (Applause.)

The CHAIRMAN said he had received a telegram from Mr. Bolitho, M.P., stating that last night Dr. Tanner objected to the Arbitration Bill being dealt with after 12 o'clock, but that the Home Secretary had told him (Mr. Bolitho) that he approved of the Bill. Mr. T. B. Bolitho wrote that he and those associated with him approved the scheme set forward in the circular, and wished it all success. He might say that Mr. Bolitho had given personal attention to the matter by attending general and committee meetings, and the scheme they had heard from Mr. Thomas had his cordial approval. (Applause.) The number of proxies sent in showed that the shareholders generally also approved of the scheme. (Hear, hear.) He had no doubt that the new company would be successfully formed, and a good mine found there by the expenditure of a moderate amount of money. It was with interest that he read the remarks of their member of Parliament in London on the future of tin, and he felt that surely the low price of tin would not much longer continue. (Hear, hear.) In his opinion, Mr. Foster Brown had grasped the position of the two mines in a thoroughly masterly manner, and the report must commend itself as promising great good in the future. (Applause.) He had no doubt that the Articles of Association would run on much the same lines as those of Dolcoath, and the committee of that mine felt that, subject to certain pledges given in connection with the money, they would like to place themselves in the hands of shareholders at the first convenience, and let them choose the directors. (Hear, hear.) But he would point out that the success of a scheme would depend to a great extent upon the time directors gave to the matters, and therefore, they should not have ornamental directors. (Hear, hear.) He moved:—"That it is desirable that a company, with Limited Liability, be formed to acquire and work the Tincroft and Carn Brea Mines on the general lines of the scheme explained at this meeting, and that accordingly this company be registered under the Companies' Acts, 1862 to 1890, and that the requisite steps be taken accordingly."

Mr. JOHN MAYNE seconded.

Mr. E. G. HARVEY, in supporting, dwelt upon the help they had received in the consideration of the Limited Liability proposals from Mr. T. B. Bolitho, M.P., who, with his friends, owned more than one-quarter of the whole mine. (Hear, hear.) Their thanks were also due to Lord Roberts and Mr. Basset—(hear, hear)—and, considering how those two lords had come forward, he felt they could not do better than accept the proposals submitted. (Hear, hear.)

The CHAIRMAN, in answer to questions, said they hoped to get a lease for 60 years with a remission of dues for a certain period upon the mine made a dividend. (Hear, hear.) Captain TAYLOR said the water was flowing into the north part of the mine, and rising at the rate of about 2 feet per day. But they happened fortunately to have plenty of arsenic and copper levels, so they need not be very much alarmed by the water from the eastern mines. Tincroft would be the last to suffer, and the main lode in the mine would never be affected from the north.

Mr. PEARCE JENKINS, the representative of Lord Roberts, was glad the scheme had progressed so far, and they might depend that the terms Lord Roberts would ask would not be considered unfair. (Hear, hear.) He regarded the scheme as the only practicable one, and if the shareholders gave it the support he thought they would in their own interests, the thing would be brought to a successful issue and he hoped it would prove profitable to the shareholders. (Hear, hear.)

The motion was carried unanimously.

Mr. BAIN proposed a vote of thanks to the Chairman for the constant care he had devoted to the scheme.

This was seconded by Mr. JAMES WICKETT, and carried unanimously, and the proceedings terminated.

### CARN BREA.

Subsequently a similar meeting was held at Carn Brea, Mr. F. HARVEY presiding over that also.

The CHAIRMAN announced that Mr. Basset had offered a lease for 60 years, with a remission of dues for three years, unless profits were made, and stated that in that mine there were 4256 proxies in favour of the scheme. He moved a proposition similar to the one passed at Tincroft, and this, after being seconded by Mr. HARVEY, was carried unanimously.

It was decided to give the committee power to deal with the 607 relinquished shares, of which there were a short time ago 903.

A vote of thanks to the Chairman terminated the proceedings.

### WHEAL AGAR.

A meeting of the shareholders in Wheal Agar was held on the evening of Thursday, to consider the situation of the mine and East Pool.—Mr. R. L. HARTLEY presided.

The statement of affairs showed a balance of £11 against the mine.

The PURSER (Mr. Cornelius Bowden) said that there was a bankers' overdraft of £1151, and the total debts were £1216. Against that there were arrears of calls, £522; relinquished share account, £121; and bills receivable, £131. The PURSER placed upon the table proxies representing 1877 shares in favour of the committee, and

Mr. T. O. PETER said he had 767 in favour of Mr. Strauss.

The CHAIRMAN said he had never had to do with negotiations so difficult as those that faced him in Wheal Agar. They knew that he had had several communications with Lord Roberts. He said that Lord Roberts had been left alone, this matter would have been settled long ago. Everything put before Mr. Strauss had been ignored, and he had not been able to make any impression upon East Pool. He supposed East Pool Committee had made up its mind to accept arbitration on the whole matter. Seeing that in the year Wheal Agar was accepted £8000 to £10,000 was lost, the committee did not see their way to recommend the shareholders to go on spending money without a chance of getting some return. They had to face the bank overdraft, the matter of encroachment with Mr. Basset, and the Fockingham Foundry. If they had to claim. Then, matter to arbitration, though they were willing to let them have the engine on terms to be settled by arbitration. But at the meeting in Truro East Pool withdrew every overture they had made, and said they would give 500 shares, or £250 in cash, for Wheal Agar, which was what the committee of Wheal Agar could not recommend the shareholders to accept. (Applause.) Had East Pool met them in a business way the difficulties would have been settled 12 months ago, but Wheal Agar could not settle it by themselves. (Hear, hear.)

Mr. E. G. HARVEY moved:—"That the proposal, which has been accepted by East Pool, be also accepted by Wheal Agar—viz., that the two mines amalgamate, that East Pool create a number of new shares to rank equally with the existing shares, such new shares to be given to Wheal Agar shareholders for the acquisition of their sets and plant, and that the number of such new shares to be created and given to Wheal Agar be left to arbitration in the usual way, each party naming an arbitrator, within a fortnight. The arbitrator, in case they cannot agree, to appoint an umpire, whose decision shall be final. Or, as an alternative to the above, the East Pool shareholders be invited to purchase Wheal Agar engine, pitwork, and plant at a sum settled (in case of disagreement) by arbitration as above."

Mr. J. PERREMAN seconded the resolution.

Mr. T. C. PETER, speaking as the representative of Mr. Strauss, said the position was not the fault of Wheal Agar Committee or of East Pool Committee, but of those people who wrote anonymous letters to the papers and wrote to the lords bringing unfounded charges against the two committees. He respected the motive of that committee, and believed them to be honourable in every way.

The CHAIRMAN said he did not agree with Mr. Harve's proposition. In his opinion the best thing they could do was to sell the mine to East Pool, and he considered they should not put any price upon their property, because he did not think there was any chance of coming to terms upon that unless they went to arbitration. He personally wanted the shareholders in that mine to lay upon their own and work it again when a suitable time came. East Pool had said they did not want Agar, and that if they had it they would only work the engine, though he had in his possession a letter from Mr. Strauss saying that East Pool engine was sufficient to pump their own mine. Other mines in the district had stopped their engines, but as soon as Wheal Agar stopped there was an outcry about the miners. He moved:—"That the meeting decide to offer Wheal Agar Mine to the shareholders of East Pool at a price to be arrived at by arbitration, and that negotiations with a view to that end be commenced immediately, and, if successful, the detailed terms of the reference, and the formal manner for the carrying out of the same, be submitted to a meeting of shareholders at as early a date as possible."

He was not in favour of working under the present circumstances, and putting money into the concern. It should be understood that he did not propose that through any threats from Mr. Strauss or anyone else, but after discussion with friends and other members of the committee. It was only that day that the committee came to the decision. The motion was carried by a majority of 10 to 5.

He did not think he should ever be tempted to come in again. Had the thing been settled he should have stuck to Wheal Agar for a long time. But Wheal Agar was not going to exist to pump the water of a neighbouring mine.

Mr. PETER seconded the motion, saying that would meet his view, and Mr. HARVEY then withdrew his proposition.

Mr. ROWE, of Praze, pointed out that Agar was making all the offer, and moved, as an amendment, that they should ask East Pool committee to sell their mine to Wheal Agar, the price to be fixed by arbitration.

Mr. W. H. RILEY seconded the amendment.

On being put the amendment was lost, and the Chairman's resolution carried unanimously.

On the motion of Mr. HARVEY, seconded by Mr. RICHARDS, it was resolved to charge 5 per cent. interest on all calls due after May 1.

### JULIA-TALTAL NITRATE COMPANY (LIMITED).

The adjourned annual meeting was held on Tuesday, at the Cannon-street Hotel, Mr. H. W. Carter presiding.—The Chairman said that the last meeting was adjourned in order that the directors might give details of some of the accounts. These had been sent round to the shareholders, and he would be happy to give any explanation that might be required. He moved that the report and accounts be adopted.—Mr. Hume, who moved the adjournment at the last meeting, said that since then two committees had been working constantly with a view to the amalgamation of the company with some other undertaking, or its reconstruction on a sound basis. There was a great deal they might say with regard to the accounts, but he thought that the wisest plan was to pass them without much comment. It was inevitable that there should be a reconstruction, and the accounts could be considered at the extraordinary general meeting which would have to be called.—Mr. Little said he considered the present the proper time to discuss the accounts. To his mind the item of £2300 for directors' fees, office rent, and salaries was scandalous.—Mr. Ewer proposed that the Chairman (whose name was to come up for re-election) should resign his seat on the board, and that a committee be formed to confer with the directors as to a scheme of reconstruction.—A promise having been given by the directors that they would not offer any opposition to a reasonable plan of reconstruction, the accounts were unanimously adopted, and Messrs. Hume, Winterfield, Jay, Weldon, Vincent, and Tremayne were appointed a committee in accordance with Mr. Ewer's suggestion.

### RHODESIAN AND GENERAL CORPORATION (LIMITED).

The statutory meeting of this company was held on Tuesday, at the offices, 10, St. Helen's-place, E.C., under the presidency of Mr. George Campbell.—The Chairman said the company was registered on December 14, but it was not until the middle of March that the prospectus was issued, and then only privately. The joint stock assets had not yet been transferred, or the purchase consideration paid. The business, however, was taken over and carried on as from January 1 by the company, since which date a shrewd and active agent had been despatched to South Africa to arrange cutting matters, which they had but very little doubt would conduce to the prosperity of the company. Although the state of affairs in South Africa was very serious, yet he believed that sooner or later they would be restored, when they, being already established, would have the choice of a great deal of business. They had already large and paying business in hand, with prospects of an immediate increase, whilst in their managing directors they had every confidence. Some compensation for the present disturbance was the fact that Mr. Rhodes had been induced to take up his abode in Rhodesia, and he anticipated now that the construction of the railroads, both for the south and the east, would be greatly accelerated.

### HANNAN'S KING (BROWNHILL) GOLD MINING COMPANY (LIMITED).

The statutory meeting of shareholders in the Hannan's King (Brownhill) Gold Mining Company (Limited) was held on Wednesday, at Winchester House.—Mr. Godfrey Pardoll, who presided, stated that the property of the company was 12 acres in extent, and situated near the township of Kalgoolie. It contained two well known lodes, which were being worked in the district—Brownhill and the Iron King—while it was expected that other reefs would be subsequently discovered. Captain William Oates was well known mining expert and the general manager of the Oates' gardie Mint and Iron King, and several other adjacent properties.



## PARIS LETTER.

(FROM OUR OWN CORRESPONDENT.)

## Importance of Kaffir shares as investments.—New technical missions to South Africa.—Better demand for Rand mining scrip.—French appreciations of Westralia.

IT is a satisfactory indication of the healthy tone of the mining market here that investors should look forward to the time when the English "bears" will see the utility of their efforts to disorganise the foreign exchanges. They are so convinced of the solid and remunerative character of the Rand mining industry that they affect to attach very little importance to the rumours continually being exploited on the Stock Exchange with a view of bringing about a weakness in prices. But, at the same time, the persistency with which London speculators have been attacking the French market has not been without having a certain influence upon timid holders. These have sold a considerable amount of scrip during the past fortnight, and the readiness with which shares have been bought up at the lower prices on London account has opened the eyes of investors on this side. They are becoming more and more convinced that the South African market is on the eve of an upward movement, which promises to continue without the unhealthy fluctuations that provoked the heavy slumps in the past. The fact that the Bourse is almost entirely free from the speculative element must be a very great feature in the steadiness of Kaffir mines, and all the leading financial interests, the banks, the syndicates, and the agents de change and the rest, are determined to do everything in their power to check any tendency to reckless gambling whenever it should appear. The future of the Kaffir market is held to be bound up in its character as an investment pure and simple. This is the view which is taken of it by the vast majority of holders in France, who are resolved not to be led away by any further gambling craze such as that which produced such evil and wide-spread consequences during the past year. But it is to be feared the best intentions of the French shareholders will be powerless to act against the speculative movement which is almost certain to take place on the Stock Exchange when the Kaffir mines recover some of their old popularity. The experience of the past week, when timid holders got rid of their shares, and then hastened to buy them back again upon finding that they had been too precipitate, proves that there still exists an element of weakness against which the less emotional investor will probably have to struggle in vain.

The desire of French financiers to make the Paris market as independent of foreign influences as possible is part of the policy now being pursued of increasing French interests in the Transvaal, not only by investment in the leading gold mines, but also by establishing purely French enterprises, mining and otherwise. There is at the present moment a very large number of engineers, prospectors, and others who are exploring the new countries being opened up in South Africa with a view of pegging out likely claims, and several mining and development companies are in course of formation in France for the purpose of exploiting these territories. This week M. Le Nourichel, a mining engineer, and M. de Massia, an agricultural expert, have left for Mozambique on behalf of a company which has secured important concessions in the valley of the River Rovuma. They intend laying down gold extracting plant with a view of working upon the placer and quartz deposits, which are reported to be rich in the precious metal, and at the same time steps will be taken for developing the agricultural resources of the region and for the establishment of commercial agencies in the principal centres. Another mission has been sent out during the past few days to Madagascar by the Société des Mines d'Or d'Alxville, under the direction of a well-known mining engineer, M. Blanchard. This concern has been formed by a few capitalists in the department of the Nord, and it intends working auriferous concessions which have been made over to it by the Suberbieville Gold Mining Company. It is significant that nearly all the companies which are being floated in France for the carrying out of preliminary gold mining operations are supported by a few capitalists, who provide the funds without any appeal to the public being necessary, a fact which sufficiently proves the *bona fide* character of the undertakings, and the confidence of financiers in the future of the gold mining industry.

The demand for South African shares this week has been satisfactory on the whole, and the market is firmer than it has been for some time past. The doubt which still prevails as to the probable course of events in the Transvaal has undoubtedly prevented any active movement in this scrip, but this is mainly due to the nervousness of the Stock Exchange, and not to any fear on this side that the situation will become more complicated. As it is, the slightly increased purchases on London account during the past few days have had the effect of firming up the values of Kaffir shares perceptibly, and investors have been taking up the scrip pretty freely, under the impression that a further rise in values will take place. The character of the French buying is, moreover, sufficiently proved by the demand for nothing but gilt-edged securities, like Ferreiras, Consolidated Gold Fields, Robinson Mines, and East Rand, all of which are quoted at satisfactory figures, and in some cases at an appreciable advance on the week. Robinson Banks are not meeting with so much favour in consequence of the smallness of the late dividend, and Chartered is freely offered as the result of the official statement that the Chartered Company is to bear the cost of suppressing the Matabele revolt. It is generally believed that the heavy liabilities incurred by the company since the beginning of the year, as well as the curtailment of its privileges, have very seriously prejudiced the position of shareholders. At the same time, it must be remembered that even this is not without a compensation, since it will compel Mr. Cecil Rhodes to proceed at once with the opening up of the vast territory, which he was about to do when the revolt of natives intervened to paralyse operations.

Attention is being once more directed to the Westralian mines by the report of Herr Schmeisser, which is being criticised, on the whole, in a favourable spirit. The absence of any definite pronouncement as to the depth and durability of the auriferous quartz is, of course, a point upon which a good deal of emphasis is laid, but this is not held to be any reflection upon the value of the Westralian deposits. Not until after some years of active operations will it be possible to prove whether the deposits as a whole increase in depth. So far, the pinching out of much of the quartz which has been worked merely shows that the Westralian mines cannot be judged from the same standpoint as those of the Rand. The magnificent results that are being secured from the "banket" tends probably to prejudice capitalists against the quartz formation with its varying yield, but there is no reason why the Westralian mines should not be worked as successfully as those of California, which it seems to resemble in many respects. The new gold field has certainly the advantage of being able to avail itself of processes which will permit of the maximum of gold being obtained from the quartz, and there is not the slightest doubt but that if exploited upon intelligent lines the mining industry in that country will be a lucrative one. The only conclusion that can be drawn from Herr Schmeisser's report is that the Westralian gold field cannot be worked upon the same scale as the Rand, though it is indispensable that the same means of economy in recovering the gold be employed. This belief in the future of the Westralian industry has induced one or two Paris financial syndicates to send out mining engineers to that country to examine into the value of the deposits, and the Credit Lyonnais has just despatched M. C. Vouillemier to the Perth and Coolgardie districts for this purpose. While the Westralian mines are only just beginning to attract attention in Paris, we are informed by a Paris broker, who has been on a visit to Brussels, that investors in that capital are interesting themselves in Westralian mines to the exclusion even of the South African.

had reported that the Hannan's King Brownhill lease was situated in the midst of a large number of the most important mines in the district, and that it lay on the same line of reef as the Golden Zone. A good supply of water had been obtained on several of the surrounding mines, and he saw no reason why their own lease should not be equally fortunate when a greater depth was attained. Mr. Leslie A. Norman, of the firm of Kyle and Norman, had also examined the property, and had reported that its intrinsic value lay in its undeniable position in relation to several well known mines. There is little doubt, he considered, that the property would be found to contain some of the best lodes in the belt. The Chairman, in conclusion, said that information from reliable sources went to show that 10 dwts. would pay for working, while it was anticipated that the average yield of the mine would be a great deal in excess of that figure.—A vote of thanks to the Chairman terminated the proceedings.

## BRITISH WESTRALIA SYNDICATE (LIMITED).

The second ordinary general meeting of the shareholders in the British Westralia Syndicate (Limited) was held at the company's offices, 32, Old Jewry, E.C., on Wednesday, Mr. E. S. Revett, presiding.—The Chairman, in moving the adoption of the report and accounts, stated that the dividend they proposed to declare that day showed that the director and manager had worked hard in the company's interest during the past year. They had earned a profit equal to 55 per cent. on their total capital, while they had at the bank a sum representing almost the whole of it. The Great Boulder Perseverance property having turned out so well, it was sold to the Great Boulder Perseverance Gold Mining Company, which was provided by them with the whole of the necessary working capital. Subsequently a large number of the shares were sold at a very considerable profit. Besides this, an arrangement had also been made to dispose of another portion of the shares they still retained, and the bargain would be an excellent one when completed. Two other properties they possessed and were developing were the Great Boulder South, and one in the district known as Slug Hill, and in addition they had acquired an interest in a property in New South Wales. As to the Great Boulder South, the directors contemplated bringing out shortly a company to purchase this property. Not requiring all their capital at present, they had invested a portion in a sound security, but it was readily available when they wanted it. In conclusion, Mr. Revett referred to the election of Mr. Henry Walter as a director.—Mr. Joseph Lewis seconded the resolution, and it was carried.—The Chairman then moved "that a dividend at the rate of 20 per cent., equal to 4s. per share, free of income-tax, payable on and after to-day, be declared."—Mr. Waddington seconded the motion, which was agreed to.—Messrs. Chatter, Nichols, and Co. were reappointed auditors, and a vote of thanks to the Chairman, directors, and staff concluded the meeting.

## LAKE VIEW SOUTH GOLD MINE (W.A.), LIMITED.

The statutory meeting of the shareholders in the Lake View South Gold Mine (W.A.), Limited, took place at Winchester House, E.C., on Thursday.—The Chairman (Mr. R. B. Tetley) said he found himself that day in a position of considerable advantage over many Chairmen of statutory meetings, inasmuch as he could give them results which had been actually achieved on their property. The 10,000 shares issued were all applied for, and a satisfactory feature in this connection was that 12,000 were allotted to Australians, thus proving that those who were better able to judge as to the value of the property placed the utmost confidence in the undertaking. In regard to the development work, three shafts had been sunk to a depth of over 100 feet, and the assays made led them to expect that the milling value of the lode would be 24 ounces per ton. The cost of working would be 1/2 ounce, so that the profit would, no doubt, be a reasonable one. When the company took over the mine there were 7500 tons of ore ready for the battery, a quantity which most probably had now been doubled. With respect to the 10 stamp battery that was on the property when they purchased it, this was not yet running, but was expected to start every day. The latest cable they had received was to the following effect: "Kalgoorlie, April 14.—Milling delayed owing to non-delivery of fittings. Shall commence crushing ore as soon as possible. Number of tons of ore on the dump is 2000. There are 4000 gallons of water in the 14 hours. At a depth of 150 feet, 400 feet developments upon the lode. Have begun to stop.—Oats." This news he considered very satisfactory. Having read a report from Mr. George Grey, the company's engineer and manager, who described the property as a very high-class one, Mr. Tetley concluded by stating that it was not unexpected that the shareholders would be called upon to pay another call, as the directors anticipated that before the 5s. already paid on each share was spent the mine would be self-supporting and dividend-paying.—Mr. W. G. Brookman, one of the discoverers of the property and a member of the board, also addressed the shareholders, remarking that he saw no reason why the company, like the Lake View did, should not be a position to pay a dividend within six weeks after the first crushing.—A vote of thanks to the Chairman and directors terminated the proceedings.

AUSTRALIAN BROKEN HILL CONSOLS (LIMITED).—Mr. J. H. Ward presided on Thursday at an extraordinary general meeting of the shareholders, held at Winchester House, to consider the advisability of winding up the concern with a view to its reconstruction.—The Chairman said that, considering the large extent of their property, there was ample room for fresh exploration, with a view to developing lodes which would give good results. The scheme to provide further working capital involved the formation of a new company, to be called the New Australian Broken Hill Consols (Limited), with a capital of £600,000, in £1 shares, with 19s. per share credited as paid up, to be allotted to the shareholders in the old company, share for share, 3d. per share of the outstanding 1s. being payable on application, and the remaining 9d. to be called up at intervals of not less than three months.—Mr. Beaumont, who represented some of the largest shareholders, moved an amendment that the second call should not be made under 12 months.—Eventually the meeting stood adjourned for a fortnight with a view to an arrangement being effected with some of the largest shareholders as to the dates at which the calls would be made payable.

## DIARY.

## Monday, April 20.

Eagle's Nest (Mount Marguerite), Winchester House, 12.  
Society of Arts, "Precious Stones," Mr. H. A. Miers, 8.

## Tuesday, April 21.

Exploring Company, Cannon Street Hotel, 12.  
The Albion (Transvaal) Gold Mining Company (Limited), Winchester House, 12.  
Tin Tackling, Tabb's Hotel, Redruth, 1.  
Black Reef Proprietary, Johannesburg.

## Wednesday, April 22.

Consolidated Gold Fields of South Africa, Cannon Street Hotel, 12.30.  
Tharais Sulphur and Copper, Merchant's Hall, Glasgow, 1.  
Graskop (Limited), Winchester House, 2.  
The Mexican Explorations (Limited), Winchester Ho., 3.

## Thursday, April 23.

Empress of Coolgardie Gold Mine, Winchester House, 11.  
McAlloch Coolgardie Gold Mine, Winchester House, 2.

## Friday, April 24.

Scottish Australian, Winchester House, 12.  
Quebrada Railway Land and Copper Company (Limited), Winchester House, 2.  
Bathfing Mine, Johannesburg.

The SUBSCRIPTION LIST OPENS TO-DAY (SATURDAY), and will CLOSE on TUESDAY, 21st APRIL, at 4 p.m., both for Town and Country.

## SPECIAL POINTS.

1. Large Acreage.
2. Sufficient working capital secured before issue.
3. Large amount of Development. Nine shafts sunk to considerable depths on the property.
4. Ample supply of water.

The whole of the cash purchase price and £25,000 of the Working Capital having been guaranteed, the Directors will go to Allotment immediately the lists are closed.

## The Menzies Gold Development Company, LIMITED.

SHARE CAPITAL ... .. £250,000.

Divided into 250,000 Shares of £1 each, of which 50,000 are set aside for Working Capital.

150,000 Shares are now offered for Subscription, Payable—2s. 6d. per Share on Application; 5s. on Allotment; 5s. One Month after Allotment, and the balance as required in Calls not exceeding 5s. each, and with not less than One Month's Notice.

## DIRECTORS.

HON. J. H. H. BERKELEY (Chairman Great Buninyong Estate Gold Mining Company, Limited), 11, Onslow Crescent, B.W. (Chairman).  
SIR JAMES LINTON (Chairman Menzies Gold Estates, Limited), 29, Brook Street, Grosvenor Square.  
P. HUGH MARSHALL, Liverpool (South African) Exploring Syndicate, 13, Castle Street, Liverpool.  
L. R. NETTLE (Director of Menzies Gold Estate, Limited), 25, Coventry Street, W.  
CAPTAIN D. O. MEROER (Director Transvaal Westralian Gold Concessions, Limited), Capetown, E.C.  
THOMAS NEWTON (Director of the Sir Walter Raleigh Mining Company, Limited), Astley Hall, Shrewsbury.  
Colonel T. P. POWELL (Director of the British Gulana Prospecting and General Developing Company, Limited), 49, Palace Gardens Terrace, Kensington.

## GENERAL MANAGER IN AUSTRALIA.

FLORENCE O'DRISCOLL.

## BANKERS.

Messrs. BROWN, JANSON, & CO., 32, Abchurch Lane, E.C.  
Messrs. CHARLES HOPKINSON & SONS, 2, Regent Street, S.W.

## SOLICITORS.

Messrs. LAWRENCE, WALDRON, & WEBSTER, 14, Old Jewry Chambers, E.C.

## AUDITORS.

Messrs. CARNABY HARROWER & CO., Chartered Accountants, 23, Collyer Hill Chambers, E.C.

## BROKER.

M. MENDELSSOHN, Stock Exchange, and 6, Austin Friars, E.C.

## CONSULTING ENGINEERS.

Messrs. BEWICK, MOREING, & CO., Broad Street House, New Broad Street, E.C.

## SECRETARY AND OFFICES (pro tem.).

A. C. ADAMSON, Throgmorton House, Capetown Avenue, E.C.

## ABRIDGED PROSPECTUS.

This Company has been formed to acquire and work Seven Mining Leases in the Menzies District of Western Australia, comprising about ninety-five acres, situated in the centre of some of the best known mining properties in that district, and from its position the property should be interested by the whole of the reefs which have now been proved through this district. The following are the numbers, names, and acreage of the Leases which the Company is acquiring:—

No.	Acres.	No.	Acres.
No. 3050 Shirkin	24	No. 1421 Lady Shenton North 12	12
" 3051 Fleen	24	" 1423 Florence North	21.38
" 3055 Bantry	12	" 1424 Pericles	6
" 3058 Otho	8.125		

Immediately to the north-west is the property of the Menzies United Mines, Limited, consisting of five leases, and covering an area of 84 acres. The Capital of that Company is £200,000, the shares of which are now being dealt with in the market. The report of Messrs. BEWICK, MOREING, and Co., states that the valuable "Friday Lode" must underlie nearly the whole of that property. This lode may therefore be expected to underlie the adjoining blocks which this Company is acquiring.

To the south-east, immediately adjoining, is the Florence Mine, the reefs running through which should pass directly into the property being acquired by this Company. Of the Florence Reef Mr. C. BEAUMONT, Manager of the Lady Shenton Mine, says:—"The property is an extremely rich one, and it is barely possible to break a stone anywhere that does not contain gold, and the principal reef runs east and west through the centre of the property."

A very large amount of work has been done on the various Leases, and the value of the gold reefs has in more than one instance been proved, as will be seen from the following statements taken from the reports of Messrs. ALEX. MATHURON and Co., and from the weekly reports of Mr. BALLARD, the present Mine Manager.

On Block No. 3050 (Shirkin) three shafts have been sunk, No. 1, 24 ft., No. 2, 27 ft., No. 3, 75 ft., and have proved a very large formation of 5 ft. in width, with two clean walls underlying to the westward at an angle of about 45 degrees. Numerous samples have been taken from the various levels, which give the satisfactory result of from three ounces to over six ounces of gold per ton, the quality of the ore holding steadily all the way down.

On Block No. 3051 (Fleen) a shaft has been sunk 175 ft. On February 4th a cable was sent stating that fresh water had been struck, giving 3200 gallons daily. Pumping plant has been ordered from Sydney, and a considerable increase in the supply is expected after further development.

On Block No. 3055 (Bantry) shafts, drives and cross-cuts 427 ft. It is believed that the Florence Reef should run directly through Block No. 1421 (Lady Shenton North), and on this shaft drives and crosscuts of 315 feet have been made which have proved a good formation of about twenty inches in width holding gold steadily. Numerous samples have been taken from this shaft, which give the most satisfactory result of from half-an-ounce up to over eight ounces per ton. It is now proposed to drive from this shaft and to crosscut the Florence Reef, which it is believed intersect the Block.

Work is proceeding on the other Blocks with very good prospects of proving the reefs known to run through this district. On Block 3058 (Otho) a shaft is down some distance. On Block 1423 (Florence north) the shaft and crosscut 125 feet, and on Block 1424 (Pericles) the shaft is 103 feet. Particular attention is invited to the value of the water on these properties, which Mr. BALLARD, the present manager of the mine, estimates as worth at least 2500 per annum to the Company.

With the above facts before them, the Directors feel that they may confidently recommend this property as a gold-producing one which has already been proved, and which will fully justify their proceeding to immediately further develop it.

The advance of the Menzies Gold District has been most rapid; the richness of the reefs already opened, and the growth of the township, have made it remarkable amongst the new Gold Fields of Western Australia. The public has already shown its confidence in this District, and there can be no doubt that this Company will possess one of the most valuable properties in this already famous field.

The Menzies District has two lines of communication with Perth—one through Coolgardie, from which it is distant about 160 miles, by a good road, and the other from the Southern Cross Station on the Perth Railway, from which it is distant about 130 miles. Telegraphic communication is open with it, and a railway is also in contemplation and projection.

The following are the present prices of the shares of the Companies immediately adjoining this property:—  
Florence ..... 1 1/2-1 3/4  
Lady Shenton ..... 2 1/2-3 1/2  
Menzies Gold Estates ..... 1 1/2-1 3/4  
Menzies United ..... 1 1/2-1 3/4  
The purchase price has been fixed at £200,000, payable as to £15,000 in cash, and the balance of £185,000 in fully-paid Shares, partly in cash and Shares at the option of the Directors. This will leave £50,000 available for working capital.

The Concessions and Mercantile Agency (Limited), who are the Promoters, have undertaken to pay all the expenses other than registration fees incidental to the formation of the Company and the issue of Capital up to the first Allotment.

SIR JAMES LINTON and Mr. NETTLE are Directors of Menzies Gold Estates (Limited), the original Vendors, and Mr. BERKELEY is a Director of the Concessions and Mercantile Agency (Limited), the Promoters, and he is interested in the sale of the property.

Full particulars as to contracts have been advertised, and are contained in the Prospectus.



## LATEST FROM THE MINES

## CABLEGRAMS AND TELEGRAMS.

**ANACONDA COPPER.**—The Exploration Company (Limited) have received a cable from the President of the Anaconda Copper Mining Company, advising that the dividend of 62½ cents per share, declared by the New York board, has been confirmed by the board at Montana. The Exploration Company will duly notify at what rate of exchange the dividend will be paid by them on May 1.

**APPANTOO.**—During March mill crushed 530 tons quartz, yielding 322 ounces bar gold. The February return of 325 ounces realised £1195 1s. 7d.

**ALASKA MEXICAN.**—Cablegram from Alaska reports the clean-up for the month of March as follows:—"Period since last return, 31 days; bullion shipment, \$22,019; ore milled, 7282 tons; sulphurets treated, 126 tons; of bullion there came from sulphurets, \$6160; working expenses for period, \$13,189."

**AFRICAN ALLUVIAL.**—Cablegram from the superintendent engineer, Mr. Ninas, received April 17:—"60 feet of boxes working on alluvial gold. I will telegraph result of clean up."

**ARMADALE GOLD MINING.**—The company's consulting engineer, Mr. Frank Nicolas, has cabled as follows:—"Armada. Incline shaft 80 feet, following the course of the vein, 20 dwts. per ton. North drift on the 35 feet level, 26 dwts. per ton."

**BRILLIANT AND ST. GEORGE UNITED.**—The following cablegram from the directors has been received:—"Have crushed during the month 1512 tons of quartz for 2313 ounces of gold. Have declared a dividend of 9d. per share, payable on Wednesday, the 22nd inst. The approximate value of the above return is £8000."

**BROKEN HILL PROPRIETARY.**—A cablegram reports that for the week ending the 16th inst. 7978 tons of ore were treated, yielding 461 tons of lead, containing 145,450 ounces of silver. The price of the shares in Melbourne is stated to be £2 6s. buyers.

**BUFFELSDOORN ESTATE.**—The Johannesburg Consolidated Investment Company announces the receipt of the following cable from the above company:—"Production for March 2202 ounces; 80 stamps; 29 days."

**BRILLIANT BLOCK.**—The London offices have received the following cablegram from the head office in Charters Towers:—"Have crushed (during the month) 1655 tons of quartz for 1039 ounces of gold. The profit on the run is £350. The approximate value of this return is £3600."

**BROKEN HILL PROPRIETARY.**—Available yield for the week ending the 16th inst. was 7962 tons of ore, yielding 480 tons of lead containing 145,589 ounces silver. The price of the shares in Melbourne is £2 6s. buyers.

**BAYLEY'S REWARD No. 1 SOUTH.**—The following cable, dated the 17th inst., has been received by this company's London office from its head office in Melbourne:—"273 ounces, 140 tons."

**CASSEL.**—A cablegram just received gives the output for the month of March as 25,017 tons; profit, £4900.

**CRESCENT.**—The following telegram, dated April 14, has been received from Mr. T. G. Davey, the superintendent:—"The mill has been started. Mill working splendidly; about to commence crushing to-morrow morning."

**CRIPPLE CREEK PIONEERS.**—Official information states that a rich strike has been made on Bear Hill's property. Assay value \$68 to \$44,000 to the ton.

**CROWN REEF GOLD.**—Results for March received by cablegram from Johannesburg:—"Number of days working, 120 stamp mill, 29 days 16 hours; crushed by 120 stamp mill, 17,506 tons; yield in smelted gold from 120 stamp mill, 6706 ounces; yield in smelted gold from 120 stamp cyanide works, 4597 ounces; total, 11,303 ounces.—Working expenditure and revenue, 120 stamp mill and cyanide works, 17,506 tons milled. To mining, transport, milling, cyanide, general charges, maintenance and mine development, £22,268; profit for month, £18,050; total, £40,318. By gold account, 6706 ounces from 120 stamp mill, £23,311; 4597 ounces from 120 stamp cyanide works, £17,007; total, £40,318. Revenue per ton crushed, £2 6s. 074d. cost, £1 5s. 529d.; profit, £1 0s. 745d."

**CAYLOMA SILVER.**—The manager at the mines reports March production, 8250 ounces fine in export ores; 4300 ounces fine in bullion.

**EAGLEHAWK CONSOLIDATED.**—The following fortnightly report has been received from the mine, dated Maldon, March 2:—"I beg to report progress in your mine during the past fortnight. The shaft has been sunk a further depth of 28 feet, total from the plat 66 feet, or 1066 feet from the surface."

**FREDERICK THE GREAT.**—Cablegram received in London on April 14:—"Winze from 580 level. There is a good show of gold to-day. We can crush as soon as we have connected 680."

**GULLEWA.**—The following cable has been received from Messrs. F. W. Prell and Co., the company's agents in Melbourne:—"Machinery has started from Minginew. Main shaft down 80 feet. Mine looking well."

**GREAT BOULDER MAIN REEF.**—Cablegram received from the company's agent at Perth:—"Cut fresh leaders, west drift, section 1. Sub-section south containing visible gold. Have struck a flow of water (in) winze section 1 sub-section west 110 feet (level).—Macklin." (This means that water has been struck at the 110 feet level in the west shaft and the leaders in the west drive from the same shaft. The section and sub-sections simply refer to the working plan at the company's office.)

**GELDENHUIS ESTATE.**—Copy of cablegram received from the head office, Johannesburg:—"Reading. Last month's (March) profit was £7500."

**GREAT EASTERN COLLIERIES.**—Cable, dated April 15:—"The output of coal for the month of March was 16,100 tons. The profit for the month of March was £2300."

**GOONGARRIE.**—Copy of cable received from the Goongarrarie Gold Fields (Limited), Perth, Western Australia, April 17:—"New lode cut 6 feet wide, showing good gold. Machinery arrived Coolgardie."

**HANNAN'S SIR JOHN FORREST.**—Mr. Woolcock cables as follows:—"Main shaft sunk total depth of 105 feet; bottom of shaft in diorite. Have resumed crosscutting east at No. 2 shaft; also driven south 30 feet on reef; reef now ferruginous quartz. The directors have acquired additional 8 acres in which the reef has an average assay value of 4 ounces to the ton."

**HOLCOMB VALLEY.**—Cablegram dated April 11 from Mr. George Thomson respecting the drifting:—"Estimate cost, 4s. per ton; revenue, 10s."

**INTERNATIONAL GOLD SYNDICATE.**—A cable received from the manager in Coolgardie states that the transfers of the Niagara Consols have been duly executed, and that arrangements are being made for continuing the developments of the property.

**KINSELLA.**—Copy of cable received from mine manager, dated April 13:—"March output. Ore mined, 600 tons; ore

treated, 650 tons; bullion recovered, 320 ounces; mines, mills, and pan expenses, £1050; plant and other expenditure, £300; estimated value total bullion, £1250; mills ran, 21 days."

**KATHLEEN.**—The directors have received the following telegram from the manager, viz.:—"The shaft has reached a depth of 100 feet. The country rock is quartz washed from reefs on bed rock, showing pieces of rock containing visible gold."

**LE CHAMP D'OR FRENCH.**—The following cable has been received from the manager of the mine at Johannesburg:—"During the month mill worked 24 days; crushed 5700 tons, yielding 2200 ounces. Cyanide treated 3300 tons, yielding 720 ounces. Total, 2920 ounces."

**LONDON AND WESTERN AUSTRALIAN EXPLORATION.**—We have received the following cablegram from our Coolgardie office:—"Prospecting party pegged 50 acres south portion block 48 (Hampton Plains Estate). Surface indications valuable; the reefs show visible gold; can be traced 100 yards; geological formation promising."

**MAY CONSOLIDATED.**—The following cable message, dated Johannesburg, April 9, has been received at the London office:—"The yield of gold during the past month (March) was 3007 ounces from 10,500 tons crushed. Mill running 25 days. Cyanide 864 ounces from 6170 tons. Total for month 3871 ounces." The following cable message, dated Johannesburg, April 11, has been received in London:—"The profit for the past month (March) was £1600. The smallness is owing to lack of labour, which, however, since then has improved."

**MOANATAIRI.**—Coopers Australasian Exploring Company (Limited) have received the following cablegram:—"Auckland, N.Z. Last month's returns, £1200, 540 tons."

**MOODIE'S.**—Last month's crushing: Claims rented, 449; tons crushed by claimholders, 2150; yielding 1150 ounces.

**MAORI.**—Cable received on Monday from Mr. C. J. McMahon, the managing director in Australia:—"Maori (Menzies). Driving south level; the width of the reef is 4 feet. Good progress is being made with machinery."

**McKENZIE.**—Mr. Frank Nicolas, the company's consulting engineer, cables as follows:—"Glenloch. We are now stoping north drift on the 40 feet level, 2 ounces 10 dwts. per ton. South drift on the 40 feet level, 2 ounces 15 dwts. per ton. Ore now being extracted from new shaft 5 ounces per ton.—Main shaft. Have commenced driving along the course of the vein."

**MENZIES "CRUSOE."**—Cable information has been received to the following effect:—"First clean up, 130 tons crushed; yield retorted gold, 562 ounces; tailings assay 13 dwts. per ton; assays of slimes from pans, 1 ounce 14 dwts. per ton. Expect 10 ounces more from quicksilver and pans. Stone crushed from Robinson Crusoe claim underlay shaft A."

**MENZIES GOLD REEF PROPRIETARY.**—Cable information has been received to the following effect:—"First clean up, 100 tons crushed; yield, retorted gold 240 ounces; tailings assay, 1 ounce 2 dwts. per ton; pan slimes assay, 3 ounces per ton; blanket sand still to grind; stone crushed from Friday claim water shaft and underlay shaft; crushed slowly; stopped three days; copper plates left in good order."

**NEW CHUM (Bendigo).**—Mr. L. A. Samuels cables as follows:—"Since last report the main shaft has been sunk a further depth of 9 feet, making a total depth of 570 feet. The influx of water is unusually heavy; now crushing; will clean up end of month."

**NEW QUEEN.**—Cablegram dated Charters Towers, April 11, gives result of crushing for past fortnight:—"200 tons, yielding 280 ounces gold. Have drawn upon you for £1000. Started crushing from No. 5 formation at the 1270 feet level in the deep shaft."

**NEW RIETFOURTEIN.**—The Johannesburg Consolidated Investment Company announce receipt of the following cable from the above company:—"On re-examination of the second level in No. 5 shaft, which must have been tried and abandoned long ago, have struck rich body of ore. This is very important, proving that reef exists in this shaft."

**NEW PRIMROSE.**—The Johannesburg Consolidated Investment Company are in receipt of the following cable from the above company:—"Production for March, 9105 ounces, 180 stamps, 28 days."

**OMELO GOLD MINES OF VICTORIA.**—The following cablegram has been received from the manager at the mines:—"Struck a rich body of ore. The west lode has an average assay value of 2½ ounces gold per ton."

**PALMAREJO.**—Mill return for March. Worked, 1750 tons; bullion produced, \$41,500; total expenses, \$36,000.

**PRINCESS ESTATE.**—Result of working for the month of March: Crushed, 2771 tons; gold won, 1126 ounces; estimated from tailings, 411 ounces, total 1537 ounces.

**ROBINSON.**—Production for March, by cable:—"Mill, 120 stamps at work. 16,850 tons of ore crushed. Yielded in smelted gold 10,099 ounces. From concentrates (by chlorination) 960 ounces. From tailings (cyanide process) 1639 ounces. From own ore 12,698 ounces. From concentrates bought (by chlorination) 1977 ounces. From slimes 1592 ounces. Total gold recovered 16,267 ounces. Profit for the month, £26,000."

**ROSE HILL UNITED GOLD MINES.**—Cable report for week ending April 11:—"Lease 509. Shaft sunk to 10 feet. Main lode running through property should be met at 60 feet. Lease 1599. Reef proved to a depth of 60 feet, width 3 feet, good quartz. Main reef has an average assay value of 1 ounce 13 dwts. per ton; taken to-day. 600 tons of ore on the dump. Could raise 400 tons next month. In main shaft just started stoping."

**ROODEPOORT DEEP.**—The following cable advices have been received as to the result of last month's crushing:—"Portion of battery only running for 24 days; 1920 tons crushed, yielding 667 ounces from plates; and 1175 tons cyanide, yielding 83 ounces; total production for the month, 750 ounces; exclusive of concentrates, estimated value 77 ounces. The grade of ore milled has been seriously affected by the amount of waste rock from development unavoidably crushed through scarcity of native labour. The yield has also been affected by the usual absorption in new plates and cyanide. 30 stamps now running; expect to start 40 stamps almost immediately."

**SALISBURY-MURCHISON.**—Cablegram states:—"Agammon. Lode in bottom of shaft 4 feet.—Salisbury. Lode in forebrest 7 feet; average assays for last week are 3 ounces."

**SAN SALVADOR SPANISH IRON ORE.**—The steamship *Charente* sailed from Santander on the 14th inst., with a cargo of this company's ore, for the Tyne.

**SIMMER AND JACK.**—Crushed 13,145 tons; obtained 5492 ounces of gold from mill; 652 ounces of gold by chlorination, and 2492 ounces of gold from tailings by cyanide during the month.

**SIMMER AND JACK.**—Last month's profit was £11,466. **SOUTH BENDIGO (Bendigo).**—Mr. L. A. Samuels cables as follows:—"Since last report the main shaft has been sunk a further depth of 20 feet, making a total depth of 789 feet. Purchase by the Bendigo Gold Fields (Limited) of leases and entire machinery has now been completed."

**SOUTHERN NEW CHUM (Bendigo).**—Mr. L. A. Samuels cables as follows:—"Since last report the main shaft has been sunk to a total depth of 140 feet cutting at bottom of shaft; the Lawrence reef, 6 inches wide, showing gold."

**SUGARLOAF "25 MILE."**—Cable received from the manager:—"Great Scott shaft, 115 feet deep; Sugarloaf shaft, 111 feet deep; 2500 yards cement.—Catherine: Cement formation, 30 feet thick.—Ambrose: Two formations cement 30 feet thick. Impossible to estimate quantity of ore."

**TRANSVAAL COAL TRUST.**—The following cablegram has been received from the head office at Johannesburg as bearing on the company's operations for the month of March:—"Output, 32,200 tons; profit, £3000."

**TWIN LAKES PLACERS.**—The manager reports by cable that washing has commenced; in 1895 washing commenced on April 17.

**UNITED IVY REEF.**—A cablegram has been received from Durban to the effect that the output for March was 590 ounces of gold, with 20 stamps working for 18 days. A dividend of 2½ per cent. is declared, payable on May 1, to shareholders on the register on April 30.

**VAN RYN.**—The following cable has been received from Johannesburg:—"The profit for last month on milling was £269; the profit for last month on cyanide operations was £977; total, £1246."

**VICTORIA GOLD MINING ASSOCIATION.**—The following cablegram has been received at the London office:—"200 tons crushed, yielded 265 ounces gold."

**WAIHI.**—Bullion return for 28 days ending 4th inst., £2926 from 2220 tons.

**WENTWORTH PROPRIETARY.**—The following cablegram has been received from the superintendent at the mines:—"Four weeks return totals 1545 ounces of gold (approximate value £5660)—namely, 760 tons of ore have been crushed, yielding 970 ounces, and 12 tons rich crude ore have been shipped, containing 575 ounces."

**WESTERN ANDES.**—Advices from the mine state that the profit for January was only £200, in consequence of great scarcity of water caused by a very dry season.

**WESTRALIAN PREMIER.**—The following has been received from Professor Nicholas:—"No. 2 shaft north level driven 150. The vein appears to have divided into branches. Ore contains fine visible gold. Crosscutting 100 feet to the north of No. 3 shaft; reef consists of a series of veins. Ore contains fine visible gold."

**WORCESTER EXPLORATION AND GOLD MINING COMPANY (LIMITED).**—Approximate profit and loss account for February:—Revenue, £9512 0s. 11d.; expenditure including redemption and depreciation, £5890 8s. 3d.; profit, £3621 12s. 8d.—Result of crushing. 30 stamps; 27½ days; 3174 tons; yield of smelted gold, 1894 ounces 2 dwts.; concentrates and tailings, 898 ounces; total 2747 ounces 2 dwts.

**YERRAKONDA.**—The following telegram, dated April 15, has been received from Captain M. Scantlebury:—"South shaft. Width of lode 2 feet 6 inches, assaying 13 dwts. per ton."

## STATE OF THE SKILLED LABOUR MARKET.

THE following memorandum has been prepared by the Labour Department of the Board of Trade for the Board of Trade Journal, and also (with additions) for the Labour Gazette:—

There has been an improvement in the general state of employment as compared both with last month and with March, 1895. The improvement affects most of the important branches of industry, except mining, which shows a very slight decline. In the 108 trade unions—with an aggregate membership of 415,731—making returns, 14,717 (or 3½ per cent.) are reported as unemployed at the end of March, compared with 3½ per cent. in February, and with 6½ per cent. in the 83 unions—with a membership of 387,907—from which returns were received for March, 1895.

Coal Mining. There was a slight falling off in employment during March as compared with a month and a year ago. In the second fortnight of the month there was, however, a recovery in the great export districts. The average number of days worked by 1061 pits, at which 296,861 workpeople were employed, was 4·81 per week in March, as compared with 4·91 in February, and 4·93 in March, 1895.—Iron mining: Employment in this industry has fallen off slightly since the previous month, but continues better than a year ago. At the mines included in the returns an average of 5·77 days per week was worked, as compared with 5·85 in February, and 5·59 in March, 1895. The total number employed at the mines was 13,317, or about 500 more than a year ago. Of these 68·6 per cent. worked full time. In the pig iron industry employment is better than in February, and considerably better than a year ago. At the end of March the ironmasters making returns had 339 furnaces in blast, being three more than at the end of February, and 40 more than at the corresponding date last year. The number of workpeople employed at these furnaces was 21,522, an increase of 78 over the previous month, and of 1559 over March, 1895. Employment in steelworks maintains its improvement as compared with a year ago, the number of workpeople employed in 107 works being 32,193 at the end of March, or 11·5 per cent. more than at the end of March, 1895. At 65 puddling furnaces and rolling mills the number employed at the end of March was 16,767, or 4·3 per cent. more than a year ago. The tinplate trade has been much disturbed, and fewer mills are working than in February. The number of mills in operation in the 89 works included in the returns was 236 at the end of March, as compared with 339 at the end of February. Only 40 of the 89 works were giving full employment. A further improvement has taken place in employment in the engineering and kindred trades, and the percentage of unemployed members has fallen from 3·4 in February to 2·9 at the end of March, compared with 7·8 per cent. in March, 1895.

Trade Disputes.—The number of fresh disputes occurring in March was 95, as compared with 78 in the month of February last and 49 in March, 1895. Of these 34 disputes took place in the mining industry, 14 in the metal trades, seven in the engineering trades. In 78 of the disputes 19,407 workpeople were involved; 72 new and 18 old disputes, involving altogether about 22,000 workpeople, were settled in March. Of these disputes 34, involving about 10,000 persons, resulted in favour of the workpeople; 41, involving about 8000 persons, in favour of the employers; and eight, involving 2880 persons, a compromise, the results of the remaining seven being indefinite or not known.

Changes in Rates of Wages and Hours of Labour.—The changes in rates of wages reported during March affected about 128,000 workpeople, of which number about 66,000 received increases, and 72,000 sustained decreases. Among those affected by increases were about 47,000 workpeople engaged in the engineering, metal, and shipbuilding industries. The decreases reported were mainly confined to coal miners and tinplate workers. In Scotland 67,000 miners had their wages reduced, in most cases by 6d. per day; and in South Wales and Monmouthshire about 4900 workpeople were affected by further reductions in the tinplate trade. During the month about 1200 persons were reported to have had their hours of labour reduced.



## REVIEWS.

*The Sheet Metal Worker's Instructor.* By Reuben Henry Wain and Joseph G. Horner. (Crosby Lockwood and Son, London.)

We have here a book that has a true value as a manual of technical education. Instead of being intended, like so many others, to teach students to play at different handicrafts, its object is to teach men really at work at their trade the principles upon which their operations are based. It has not occurred, we dare say, to many of our readers, when they step into their morning tub, that the process of cutting out that tab from a sheet of flat metal requires the solution of a by no means easy geometrical problem, as an indispensable first step. Something like two-thirds of the book now before us are taken up with the study of similar geometrical problems. Commencing with the necessary definitions and methods of describing the simpler geometrical figures, the subjects of envelopes and of the projections of solid bodies are next treated of clearly and with sufficient detail to enable a careful student to follow the whole process of reasoning. As the authors say, they learnt their projection in the workshop, and hence they attack the subject practically, yet intelligibly; all problems referring to points, lines, and planes are omitted, and solids alone are dealt with. We venture to think that a few of the elementary problems on the intersections of planes might have been inserted with advantage, but this is, we are bound to admit, quite a matter of opinion; we certainly cannot say that we consider them indispensable. Indeed, this portion of the subject forms a very satisfactory little treatise on practical solid geometry, the developments of some of the figures being extremely neat. We have noticed few actual mistakes, although we find that in one place the authors have written wedge where they meant triangle. Similarly, in the chapter devoted to mensuration, we cannot possibly agree with their dictum that "the area of the surface of a sphere is equal to four times the area of the diameter."

The second, or more strictly practical part of the book commences with a chapter on alloys; this might with advantage have been considerably expanded and altogether requires improvement. Of actual mistakes there are few, but far more information on the nature and properties of alloys ought to be given, whilst the enormous amount of work that has been done in the constitution of alloys in recent years has been disregarded. We do not like to see the statement in a text book of this kind that lead and copper alloy; it is well known that if these two metals are melted together, and the melted mass is left at rest, the molten metals tend to separate from each other into two layers like oil and water, their affinity for or solubility in each other being very small.

The last part of the book is occupied by a description of the various methods in which work is done in the shops; stamping, raising, spinning, joining, soldering, and all similar operations are clearly described, although, of course, no one could hope to learn how to execute them from mere book reading. Finally, there is a description of some of the more important machines used in the manufacture of sheet metal articles; this is fairly complete and typical, although some ingenious American machines are not alluded to.

In future editions a chapter on coated metal sheets, such as galvanised iron, tin plates, terne plates, &c., and an outline of the principles that underlie the processes of their manufacture, ought to be added.

Taking it, however, all round, this is a little book that cannot but be useful to all engaged in the sheet metal or allied trades.

*The Natural Philosophy of a Ventilating Regulator.* By H.W. Halbaum. (Thos. Wall and Sons, Wigan.)

We have read with great pleasure the little pamphlet in which Mr. Halbaum sets forth his views as to the proper theory to be applied to the regulation of splits in coal mines. The author commences by pointing out that the general theories current on the subject are incorrect; and though we could have wished that he had done this in general terms, rather than by falling foul of a concrete example, we are, nevertheless, quite disposed to agree with his opinions. The subject is one of great complexity, and we have always doubted how far theoretical considerations can be applied to it; as in so many instances of engineering practice we can, no doubt, obtain certain approximations by the application of more or less involved mathematical formulas. But these formulas necessitate so many constants that can only be obtained experimentally, and upon the accuracy of the determination of which the entire calculation rests, that it always seems doubtful whether it would not be wiser to discard the mathematical portion altogether, and to rely upon experience alone. For the mathematical formula is, or should be, a generalisation of actual experience, and there is, in a complicated matter like this, always the fear that all the conditions have not been taken into due consideration. Moreover, the adjustment of a regulator can always in practice be effected by the method of trial and error without any serious inconvenience.

We have pointed out this much to explain how it is that this portion of the subject of ventilation is in a comparatively neglected state, especially seeing how much work has been done on other branches. The reason is, as we have said, that a mine manager cannot, for instance, order a dozen ventilating fans and try them in succession until he gets one which will give him the quantity of air he requires; but, on the contrary, must be absolutely certain beforehand that the one he erects will give the quantity of air and the water gauge he desires. There is, on the other hand, no reason whatever why he should not try a dozen or more different positions of his regulating shutter till he gets it just right.

These facts do not make Mr. Halbaum's work any the less valuable; they only show why this field has been comparatively neglected. At the same time it must not be thus neglected, if the complete subject is to be thoroughly understood. Mr. Halbaum has certainly advanced the subject a considerable step, though we venture to think that he has not by any means arrived at a complete solution of the question. If we understand him correctly, he would make out that the airways leading to the splits must always be considered, if the effect of regulating the splits is to be understood, and that regulation has a very inappreciable effect unless there are airways leading to the splits. If this be so, what about the case when there are no such airways? Imagine the case of a pair of drifts in a hillside opening directly into an upcast shaft; would the quantity of air passing through the one not be increased by putting a regulator into the other? Mr. Halbaum would surely be the last man to deny it, and yet his book reads as though he would.

The value of his method is that he commences at the right end; he commences by examining the effect of the regulator in affecting the pressure in the drift in which it is inserted, and from the alteration in pressure he deduces, as is right, the amount of air which the regulated drift will pass. But, in our opinion, he would have done better still and avoided confusion, if, instead of this, he had commenced at the outset by considering the power employed. We do not, for instance, like the

method he has used on page 26, where he makes an obviously incorrect assumption—namely, that the total ventilating pressure can remain constant, whilst the quantity of air passed is diminished or increased. The fundamental proposition in all ventilation problems ought to be that the units of work remain constant with a given fan going at a given speed, and that volume multiplied by pressure is equal to the constant units of work, so that if volume be increased total pressure must decrease, or vice versa. As it is, Mr. Halbaum only makes use of this principle, which we prefer to regard as the fundamental one later on, and thereby produces confusion that might well have been avoided.

Whilst we do not, therefore, quite agree with the author in some of the details of his method of treatment of the subject, we think very highly of his work as a whole; no doubt he could have simplified some of his calculations by using more advanced mathematical methods, but we presume he has purposely avoided these. We certainly think that this little work deserves careful study from everyone interested in colliery ventilation. It is not often that a definite advance in any subject is to be found within so small a compass, and we consider that the author has done the science of mining a real service by the publication of this pamphlet.

*Handbook for Mining Students and Colliery Managers.* Parts I, II, and III. (Office of The Science and Art of Mining, Wigan.)

We have before us three small handbooks, issued with the express object of enabling mining students to pass their examinations as colliery managers. The first of these deals with geology, surveying, lighting of mines, and the Coal Mines Regulation Act, the second with boilers and steam engines, and the third with ventilation by furnace and by machinery. These pamphlets have all been arranged upon one plan—that of questions and answers, and it is evidently the idea that the students shall learn off the answers to this catechism, and thus be able to answer by rote the questions set in the examination room. We can only say that we look upon this system as radically bad. If a man knows his work, the questions set by the examiners will enable him to show that he knows it, and if he does not know his work practically, we doubt whether this kind of cramming would impose for a moment upon the thoroughly practical and able engineers who serve upon the examination boards of this country. The author of these handbooks, however, evidently thinks that this can be done, and that the parrot-like facility of repeating the answers here set down would be accepted as evidence of fitness for the certificate of colliery manager. We do not in the least believe it, and can only say so much the worse if his view be the correct one—so much the worse for the individual, for mining, and for the country at large.

The very worst thing that can happen to British mining is to have responsible positions in mines filled by men whose knowledge is surface cram alone. When the Adulteration Act was passed a number of able chemists drew up the various tests by which the purity of articles of commerce was to be determined; at the same time, numbers of probably equally able chemists set to work to discover cheap and inferior adulterants that would escape detection by these tests. This is very much what these handbooks try to do. No sooner have examinations been instituted to separate the competent men who know their work from those unfit to hold responsible positions in collieries, than we have books like the one before us, trying to give the latter the appearance of knowing what the former really know. An example taken almost at random may suffice to show the style of this work; thus in part I. we find question 24:—"Describe the theodolite . . . ." And the answer is:—"The theodolite is an instrument constructed for measuring angles true to minutes; and some are supposed to be correct even to seconds." We do not know whether this answer would gain a candidate many marks in an examination; we are quite certain that the amount of real knowledge conveyed by it is nil. We do not, however, suppose that any student ever imagined that he could really learn surveying from a book, least of all from such a book as this. It is not, however, worth while dwelling further on the defects and shortcomings of these books.

## JOHANNESBURG NOTES.

By H. BUSH M.E.

## NEW ORION.

Development in various shafts shows that the rich reef is continuous, and the fault is now defined.

## NEW BULTFOUNTEIN.

These shares are well worth buying at the present price on their merits. The blue ground at grass is worth at least £50,000, and as development goes on, great improvement is apparent. The profits should be equal to £2000 weekly net, or over 50 per cent. yearly.

## BUFFELSLOOF.

Development shows great improvement; the reef is continuous and improves as depth is attained. Advise strongly that these shares should be purchased. Over 80,000 tons good ore at grass.

## WHITE ROSE.

Advise strongly that these shares be watched; the reefs are good, and the West Rand Gold Mining Company can do nothing without acquiring this property.

## ROBINSON DIAMONDS.

Prospects decidedly unfavourable.

## BUFFELSDOORN.

No farther improvement; mining prospects for the future unfavourable.

## NEW REITFOUNTEIN.

The lower levels are not looking so well as previously advised.

## LANGLAAGTE ROYAL.

As development progresses the reefs look somewhat better at the lower levels.

## MIDAS ESTATE.

Development still shows the reef to continue right through the property, and the prospects are excellent. Shares good buying.

## WOLHUFER.

Mine development shows further improvement.

## GEORGE GOCH.

The lower levels show considerable improvement. Farther particulars later.

## STEYN ESTATE.

Though prospects are good, development is slow, and shareholders should ask what is being done.

## BANKETS.

Prospects are above all expectations. It is commonly reported that the reef just struck is giving ounces to the ton, and yet no notice has been given to shareholders. Strongly recommend shareholders to ask for some information reported with some truth, for which I can vouch that the north reef has been struck, giving over 1 ounce to the ton.

## PRINCESSES.

The prospects are not favourable.

With Orient Line s.s. *Ophir* left Adelaide yesterday with £135,000 specie for London.

## "A RICH AND PAYABLE MINE."

(See *West Australian Review*, March 21, 1896.)

The LIST CLOSES on MONDAY, the 22nd, for both Town and Country.

## THE HESPERUS GOLD MINING COMPANY, LIMITED.

Kalgoorlie, Western Australia (Hannan's).  
Incorporated under the Companies Acts, 1862 to 1890.  
Capital £100,000, divided into 100,000 Ordinary Shares of £1 each, of which 70,000 are now offered for Public Subscription, payable as follows—2s. 6d. per Share on Application, 7s. 6d. per Share on Allotment, 5s. per Share two months after Allotment, and 5s. per Share four months after Allotment.

## DIRECTORS.

Major-General Tweedie, R.A., 67, Hedcliffe Gardens, South Kensington (Director Golden Link Gold Mining Company, Limited).  
J. Atkinson Hosker, Esq., Kirtletham, Boscombe, Bournemouth (Director Bournemouth and District Electric Supply Company, Limited).  
J. Durie Pattullo, Esq., 71 and 72, King William Street, E.C. (Director Halifax Brewery, Limited).  
Montague J. Shepherd, Esq., 46, High Park Mansions, West (Director of the Ellipse Gold Mining Company, Limited).  
Engineers—Messrs. Bowes, Scott, & Co., 81, Cannon Street, London, E.C., and Coolgardie.  
Bankers—Messrs. Brown, Janson, & Co., 32, Abchurch Lane, London, E.C.  
Brokers—Messrs. Read & Brigstock, 5, Austin Friars, E.C., and Stock Exchange, London.  
Solicitors—Messrs. Gibson, Weldon, & Blibrough, 27, Chancery Lane, London, W.C.  
Auditors—Messrs. Frank Davies, Meredith & Co., Chartered Accountants, 95 & 97, Finsbury Pavement, London, E.C., and at Corporation Street, Birmingham.  
Secretary and Offices (pro tem.)—Mr. H. R. Westall, 300, Winchester House, Old Broad Street, London, E.C.

## THE HESPERUS GOLD MINING COMPANY, LIMITED.

## ABRIDGED PROSPECTUS.

This Company is formed to acquire and develop leases 445 E, 1059 E, and 1092 E, in all about 48 acres of auriferous ground, situated at Hannan's Find, Kalgoorlie, and known as the "Hesperus," "Hesperus South," and "Hesperus North" claims, and lying about a mile and a quarter south of the Great Boulder and Lake View properties.  
The situation of the property generally is excellent, being on the line of the lode of the "Chaffers" and others in a north-westerly direction, which have opened up well. The formation is traceable entirely through the length of the property. The estimated length is 2930 feet. Three shafts have been sunk; depth of northerly shaft 60 feet; crosscut both places proves width of the lode is 20 feet. Samples have assayed as follows:—Right across formation 7 dwts. per ton to 1 ounce 18 grains. To all appearance the formation is one of the finest in the same locality. Other shafts prove continuity and the value of the formation.

The property has been inspected by Brian Hosker, Esq., A.R.S.M., late Queensland Government Mineralogist, and late manager Ivanhoe Mine, who says in his report, dated Kalgoorlie, 1st January, 1896:—"The outcrop of the lode can be traced in various places through the lease, and its width has only been determined in one place, and there it is 50 feet in thickness. A shaft 60 feet deep has been sunk, and a crosscut driven to the west, showing a total thickness of 20 feet, and no wall met with in that direction. The material comprising the lode is similar in all respects to that in all the neighbouring mines in the district. I tried the stone obtained from various places and obtained gold every time, varying roughly from 10 to 30 dwts. to the ton. Water level is at a depth of 60 feet."

"Being well acquainted with the peculiar nature of the lode formation of this district, I have no hesitation in passing a favourable opinion on the mine, and believe it will be found to be not only payable, but that the deeper levels will prove to be richer than the present known depth."

The following independent report on this property has also been received by cable from Captain Oats, M.L.A., Kalgoorlie, 20th February, 1896:—"Hesperus Lease, 45 acres, 1 mile south of Boulder. There are three shafts—60 feet, 50 feet, 70 feet. A well defined lode, 20 feet in width, at the bottom of the first shaft, 20 dwts. per ton. The ore from these workings similar in appearance Boulder. Third shaft same. Water plentiful; sufficient water available to run all the machinery. Rich alluvial surface. I consider it a most valuable property. I strongly recommend."

The following cables have been received from the Manager:—Coolgardie, March 5th, 1896:—"Development works being pushed ahead vigorously with three shafts, now being sunk; from each one prospects are decidedly encouraging."

Coolgardie, April 6th, 1896. "Hesperus samples have assayed as follows:—No. 1 shaft, 5 dwts. 15 grains per ton; No. 2, 1 oz. 15½ dwts. per ton; No. 2 dump, 9 dwts. 6 grains; No. 3, 4 dwts. 1 dwts. per ton."

From the above cable it will be seen that Mr. Hosker was fully justified in the opinion he formed that the ore would increase in value in the deeper levels.  
The Vendor to the Company, Mr. E. M. Arthur, who bears all preliminary expenses (except brokerage) up to allotment, has fixed the price for the property at £75,000, payable as to £10,000 in cash, £30,000 in fully paid shares, and the balance of £35,000 in cash or shares, or partly in cash and partly in shares. This will leave £25,000 of the Company's capital available for providing working capital, which the Directors consider, in view of the above reports, to be amply sufficient.

For contracts, &c., see the full Prospectus.  
The Memorandum and Articles of Association, and the original written and cabled reports above quoted, as well as copies of Contracts, can be inspected by intending subscribers at the offices of the Solicitors of the Company.  
Application for Shares must be made on the form accompanying the Prospectus and sent to the Bankers, together with the amount payable on application.  
London, April, 1896.

## CORRESPONDENCE.

\* We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.

## CRIPPLE CREEK.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Having read the article by Mr. Percy Williams in your issue of March 7, and while quite agreeing with him as to the enormous bodies of high and low grade ore at Cripple Creek, and the necessity of ample capital to develop these deposits, I regret that I am compelled to disagree with his statement regarding the lack of milling facilities, and the "millions of tons of £2 to £5 ore which is said to be thrown over the dumps to-day."

In the first place, it is open to question if the entire Cripple Creek district, including every prospect hole sunk in the 36 square miles of auriferous territory, has yet produced anything like 1,000,000 tons of ore and waste combined.

In the second place, in my capacity as purchasing agent of the largest gold extraction mill, not of Cripple Creek, but of the United States, I am familiar with every shipping mine in the entire Cripple Creek district, and in no place do I know of ore running in value from £2 to £5 which is being thrown away; but, on the contrary, I purchased last summer 5000 tons of ore running about £2 to the ton at a substantial profit to the miner.

Our mill has a present capacity of 150 tons per diem, and construction is now under way to double the capacity of the mill, making it 300 tons per diem. The power plant, however, is capable of running still another section, making a total capacity of 450 tons per diem. The sole reason that the third section is not being put up with the second is the impossibility of receiving the necessary supply of ore from Cripple Creek district in its present state of development. We have implicit confidence in the future of the camp, and its marvellous resources and capabilities, but the point I wish to make is, that there are more than sufficient mills here at present to handle the entire output of the district.

According to newspaper accounts, two other chlorination mills are under consideration, with a combined capacity of 300 tons a day, and I believe that one of these mills will be built.

Referring to the mill with which I am connected—the Metallic Extraction Company—it is managed by Mr. Philip Argall, well known in metallurgical and mining circles on both sides of the water, and is owned by two of the richest men in Colorado; it has unlimited capital behind it, and can and will be enlarged to meet all the requirements of the Cripple Creek mines, and this without soliciting any foreign capital.

W. WESTON,  
Mining Engineer.

Cripple Creek, March 28th, 1896.



## AFRICAN MINES' MARCH OUTPUT.

	GOLD.					
	Oct. Ozs.	Nov. Ozs.	Dec. Ozs.	Jan. Ozs.	Feb. Ozs.	Mar. Ozs.
Appantoo .....	—	—	—	348	—	—
Barrett .....	815	805	546	550	571	533
Block B .....	3,606	3,418	2,690	2,548	2,621	2,870
Buffelsdoorn .....	2,049	2,716	4,011	3,625	2,539	—
Clamp d'Or .....	4,005	3,823	5,433	870	2,377	2,920
City and Suburban .....	8,597	8,225	8,036	6,908	8,037	8,203
Crown Reef .....	11,100	11,448	10,729	8,890	10,845	11,303
Durban-Roodepoort .....	6,318	6,222	4,710	3,812	5,282	5,558
Eastleigh .....	2,042	2,150	1,413	1,950	1,844	—
Ferreira .....	7,740	8,116	11,050	9,879	11,770	12,770
Forbes Reef .....	—	68	109	118	144	150
Graskop .....	—	—	144	129	201	310
Geldenhuis Deep .....	—	3,698	3,190	3,382	2,793	3,684
Geldenhuis Estate .....	6,898	6,532	5,099	2,430	5,815	6,204
Geldenhuis Main Reef .....	1,835	1,924	2,052	1,747	1,876	1,881
George Goch .....	3,244	3,190	3,355	2,278	3,082	3,383
Ginsberg .....	857	768	679	813	910	938
Glencairn Main Reef .....	1,955	6,169	5,364	3,163	4,401	4,246
Henry Nourse .....	4,724	4,847	5,021	3,616	5,288	6,166
Joe's Reef .....	230	258	205	199	155	—
Johannesburg Pioneer .....	2,668	2,762	2,710	2,611	2,698	—
Jubilee .....	2,176	2,334	2,689	2,238	2,472	2,323
Jumpers .....	6,355	5,957	4,960	3,104	3,317	3,300
Lancaster .....	348	314	234	265	—	—
Langlaagte Estate .....	11,055	10,740	9,679	9,058	9,165	9,568
Libon-Berlyn .....	644	692	653	808	821	842
Lydenburg .....	—	—	—	—	—	4,945
May Consolidated .....	5,604	5,738	5,299	5,048	3,237	3,871
Metropolitan .....	1,916	1,621	—	—	—	—
Meyer and Charlton .....	3,358	2,885	3,264	2,437	3,008	3,457
Minerva .....	—	1,695	1,139	1,300	1,313	—
Moodies .....	317	300	309	490	1,000	—
New Chimes .....	2,370	2,363	1,886	807	806	—
New Clewer Estate .....	1,473	2,223	1,381	1,673	1,683	—
New Comet .....	2,971	2,327	2,430	—	—	—
New Cosmos .....	2,766	2,734	2,175	2,020	3,058	2,724
New Heriot .....	5,808	5,735	5,326	3,825	5,716	6,045
New Kleinfontein .....	2,608	2,519	2,552	1,326	2,308	—
New Primrose .....	11,584	12,023	9,553	9,026	9,101	9,105
New Rietfontein .....	2,162	2,289	1,901	2,076	2,297	2,349
Nigel .....	2,550	2,613	2,844	2,074	2,079	1,798
Orion .....	1,850	2,500	2,900	2,111	2,111	—
Paarl Central .....	2,330	1,932	404	287	220	—
Pigg's Peak .....	—	—	—	88	66	—
Porges-Randfontein .....	3,821	2,515	2,517	1,792	1,129	—
Princess Estate .....	2,100	2,024	1,334	1,524	1,874	—
Robinson .....	17,371	16,367	16,024	12,281	14,823	16,267
Rodepoort United M.E. .....	4,823	4,719	3,625	3,337	3,820	4,001
Sallisbury .....	3,000	2,550	2,450	2,100	1,350	2,450
Sheba .....	6,980	6,563	6,602	10,010	10,028	12,500
Simmer and Jack .....	7,786	7,786	8,309	6,319	7,753	11,466
Spitkap .....	823	212	199	211	384	286
Stanhope .....	960	1,000	730	801	810	870
Sutherland Reef .....	598	594	229	239	430	378
Transvaal Gold .....	2,550	2,550	2,625	2,475	2,330	—
United Langlaagte .....	2,164	1,845	1,143	577	—	2,088
Van Ryn .....	3,128	2,624	2,406	2,834	2,081	—
Violet Consolidated .....	—	304	—	—	—	—
Wemmer .....	6,641	6,457	6,075	5,361	4,967	5,201
Woluter .....	5,240	4,435	5,527	3,216	4,906	5,524
Worcester Exploration .....	1,922	2,031	1,971	2,050	1,850	2,453

## DIAMONDS.

	Carats.	Carats.	Carats.	Carats.	Carats.	Carats.
Koffyfontein .....	3,480	3,750	3,800	3,800	4,250	4,500
New Gordon .....	—	—	—	—	2,118	—
Us. Mines, Bultfontein .....	—	—	—	6,000	—	—

## COAL.

	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Cassell Coal .....	23,537	24,105	24,100	15,880	22,435	25,017
Great Eastern .....	—	—	—	11,400	15,400	16,100
Transvaal Coal Trust .....	31,000	32,100	29,400	24,500	29,400	32,200

60 stamps, 24 days. 10 stamps, 26 days. 50 stamps, 24 days. 22 days. 15 days. 15 days. 17 days. 25 days. 1 mine closed 14 days.

The following are the profits or losses (the latter being indicated by a \*) made by South African mining companies:—

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
City and Suburban .....	8,080	7,475	4,550	4,223	—	—
Crown Reef .....	14,367	15,213	12,192	10,510	14,707	18,080
Geldenhuis Estate .....	6,500	4,500	1,996	3,700*	4,400	—
Geldenhuis Main Reef .....	1,882	2,161	2,847	2,050	2,662	—
George Goch .....	2,492	3,247	2,368	436	—	—
Glencairn .....	—	10,835	7,632	2,167	5,769	—
Jumpers .....	9,500	7,800	4,337	2,000	2,000	2,250
May Consolidated .....	6,360	6,606	6,000	4,784	—	1,600
Meyer and Charlton .....	4,271	2,138	3,708	646	2,430	3,660
New Chimes .....	2,095	2,152	1,177	—	—	—
New Heriot .....	9,350	10,091	—	6,059	—	—
New Primrose .....	14,667	16,047	6,675	5,730	6,552	—
New Rietfontein .....	1,818	1,832	1,203	—	—	—
Princess Estate .....	1,669	1,678	284	387	—	—
Robinson .....	39,800	34,000	35,000	19,000	25,000	26,000
Rodepoort United .....	8,320	7,850	4,100	4,000	6,000	6,457
Simmer and Jack .....	10,778	11,044	11,032	5,347	7,653	—
Transvaal Gold .....	3,125	3,045	2,915	2,910	—	—
Van Ryn .....	3,903	2,396	1,482	—	1,505	1,246
Wemmer .....	11,057	11,380	10,698	7,958	6,559	—

## DIAMONDS.

	Carats.	Carats.	Carats.	Carats.	Carats.	Carats.
Us. Mines, Bultfontein .....	—	—	—	2,000	—	—

## COAL.

	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Cassell Coal .....	4,400	4,750	4,550	1,000	—	4,900
Great Eastern .....	—	—	—	1,300	—	2,300
Transvaal Coal Trust .....	4,300	4,600	4,500	2,000	3,000	3,000

**NORTHERN RHODESIA.**—Dr. J. A. Moloney, formerly medical officer of the Sains Expedition to Katanga, has just returned to England on the completion of his expedition to the hitherto unexplored portions of the Chartered Company's territories in Northern and Southern Angoniland, to the west of Lake Nyassa. He did not find it necessary to fire a single shot during the whole of his journey. The territory had been visited by Dr. Livingstone, and is inhabited principally by people of Zulu origin, who have conquered the original inhabitants. Powerful chiefs rule the country. In conversation with a representative of Reuters Agency, Dr. Moloney said: "As a result of treaties concluded by me with some of the chiefs, white men can now travel through the country without fear of molestation. I succeeded in placing under the British flag four big chiefs. The country is rich in minerals, and, owing to its altitude of from 3000 to 4000 feet, is suitable for European occupation. There is no malaria in Northern Rhodesia, and horses are therefore able to exist. The agricultural possibilities are highly favourable; the natives possess cattle in considerable numbers. Corn, potatoes, and ordinary vegetables are easily grown, and the conditions are favourable for the cultivation of coffee. The development of the country has already been commenced. Before I left I established a fort in the centre of the district. The majority of my companions are still working there, and commencing to develop the resources of the country."

The annual meeting of the shareholders in the **BUFFELS-DOORN ESTATE AND GOLD MINING COMPANY (LIMITED)** will be held at Johannesburg on the 16th inst.

## BACK FROM THE GOLD FIELDS.

INTERVIEW WITH Mr. PRITCHARD-MORGAN, M.P.

HIS OPINIONS AND HIS BIG CONCESSION.

(FROM THE Pall Mall Gazette.)

HE is too well known to require introduction. He was discovering gold in Australia before some of our mining speculators were born, although he is in the vigour of life. He has discovered it, too, in Wales. During the visit to the Antipodes, from which he has just returned, we heard of his being received with open arms by members of the Australian Bench and Bar—of which he was a shining light—down to the working miners—hundreds of whom knew him. He was accompanied by Mr. Hall, his right-hand man for years and now his partner, who can smell gold. He has left Mr. Hall out there, and they form a powerful combination. I sought his views.

"What Westralian shares are we to buy?"—"You want to give your readers a tip? Well, Great Boulders are good enough."

"But we've heard of Great Boulders before. They're risen already."—"Well, I can't speak of individual companies. But, mark my words, Australia is going to beat South Africa. Eight years ago the Rand was yielding less gold than Western Australia alone is now."

"We've been expecting a Westralian boom, and it has not come yet. Why don't the companies begin crushing? There's something wrong, isn't there?"—"No. You see there is the water difficulty, and the transport difficulty, and the delay in getting machinery. Some managers have waited for the railway. And quite right, too; the cost of bringing the machinery by road would have been enormous. Some are still waiting for the machinery, and some—well, others—are not anxious to begin crushing. But the country has a great future, and a great future that is near. Conditions of working must rapidly improve, and expenses be reduced. Wages, for instance, must be lowered. It is absurd to think that they can go on paying £4 a week for mining labour, and also find the men in water, which is more valuable in some places than the gold itself."

"Is or is not the water difficulty serious?"—"Oh, it will be overcome. Look here. This is a cablegram I have just received from Mount Malcolm:—'Abundance fresh water struck at 70 feet level.'"

## Railway Construction and Ten-shilling Lemons.

"Then will they strike water like that everywhere? What about the Government scheme of water supply?"—"They cannot expect to find water as easily all over the fields. The Government will do all it can. It can afford to. Money is rolling into the Exchequer. They have been waiting to see if the field was worth spending money upon; they find it is, and they are prepared to spend it. There is wealth everywhere, and everyone is in earnest. Take the railway contractors. They were sometimes laying the railway at the rate of 1½ mile in 24 hours across country, which is a flat, dreary, blank desert. It was too much for the Government, which had undertaken to supply the rails, and found the supply run short. Now the contractors have undertaken to lay the line from Coolgardie to Hannan's on condition of their being allowed to postpone delivery for three months after its completion from Southern Cross through Coolgardie to Hannan's. They will pay themselves for the construction out of the traffic of these three months. Of course, they will get the cream. What do you think of terms like that for getting a railway built? Freightage? Why, they have been charging £45 per ton from Woolgangee to Coolgardie. But look at the price of everything. I will give you some items. In the interior the water for four horses for four days cost me £32. Hall had some lemons and he was offered 10s. a piece for them. He was offered £5 for a bottle of brandy that he had. Sell it? No. He gave it to the hospital at Norrman. Yes; there are some splendid hospitals, and they need them. In one cemetery I saw eight graves prepared for people who had not died. It is necessary, because of the great heat. Coolgardie itself is a—well, it is an awful place in many ways in the summer months."

## Coolgardie as a Bait.

"Coolgardie! It is all Coolgardie," continued Mr. Pritchard-Morgan. "Everybody is talking about it all over Australasia. It is a good thing for the Australian gold mining industry in general. Capitalists or their representatives are attracted thither; they find the conditions of working and the difficulties of exploration forbidding, and their attention is diverted to other parts of Australasia. Mount Lyell, in Tasmania, is a good property, and New Zealand is rich in gold. Gold mining, indeed, is being revived in all the colonies, and the attention of capitalists is being directed to Victoria, New South Wales, and Queensland, and even South Australia—which is deserving of it—is now attracting notice. I believe there is a good time coming for the colonies, for the reason that their development can be proceeded with unembarrassed by political difficulties. Representatives of capital who go to the colonies soon come to the conclusion that the gold belt is not merely confined to Western Australia, but practically extends throughout the whole of the continent. Some of the larger capitalists are exploring New Zealand and Tasmania, and the enormous dividends paid, and the excellent prospects of some of the companies in the former colony amply justify their action."

## Star-shaped Reefs and the Mining Laws.

"But as to Westralia—which do you consider the best districts?"—"Hannau's is excellent, and has come to stay, but some have a preference for Menzies. Many of the outlying districts will astonish the world in the near future. But general classification is often misleading to the public. It is usually asserted that the gold reefs running throughout the country are continuous, but this is not the case. The gold of Western Australia occurs in big belts or tracts. It is amusing to see the number of companies which claim to possess a continuation of the reef in a proved property. One company will declare the reef must run through its claims because it is situated north-east, another company because its claims are situated south-east, another because its claims are situated due south, and so on. If the reef served all of them it must be shaped like a star."

"Did you see the Londonderry?"—"No; I did not see it, but my daughter saw it. They seem to have hit upon some rich stuff again."

"Did you confine your attention to Westralia?"—"Oh, no; I visited the other gold mining districts, and saw most of the mining ministers of the colonies. There was one point which I endeavoured to impress upon them in regard to their mining laws, a point which I think is an important one. It seems to me that where it has not already been done, these laws should be altered in the direction of granting larger mining leases, to the encouragement of the big capitalist or company. When a field is newly opened the individual miner should be encouraged."

He, with his pick and shovel, will find where the gold is, and he should be allowed the cream for his enterprise. But there comes a time when the alluvial claim is played out. Or there is a break in the reef, the gold becoming poor, and to continue working requires large capital employed over a large area. Then the working man or the small capitalist must abandon the job. He can't afford to work over a large area and pay wages at the rate of hundreds of pounds a week. The Government should at this point encourage the inflow of large capital by granting bigger claims. The mines can then be systematically worked at a profit, though the yield be only 1 ounce to the ton."

## The Terms of the Big Concession.

"Tell me something else?"—"Shall I tell you of our big concessions in the northern territory of South Australia? Look here." Mr. Pritchard-Morgan, with my aid, unrolled an immense map, which seemed half the size of the little office we were in. "I have obtained a concession from the South Australian Government of 5000 square miles."

"You mean 5000 acres, of course?"—"No; I mean 5000 square miles. It is in five blocks of 1000 square miles each. You see, that territory marked yellow is the proclaimed gold field, and the five blocks coloured green adjoining it comprise the concession."

"But who works the proclaimed gold field? We don't hear of it."—"It is mainly in the hands of the Chinese. The Chinese are not supposed to hold concessions, nor do they; but they appoint nominees and take the profits. The Government wants to get rid of the Chinese. The average yield of these gold fields has been equal to any gold fields in the Colonies."

"And you believe your 5000 square miles rich?"—"It contains not only gold but diamonds, rubies, tin, iron, and coal. We shall pay the Government what I wanted the British Government to accept in the case of Welsh gold mining—5 per cent. on the profits. We shall hold the territory on a nominal rental, and within a certain period of making a gold discovery we have to report it to the Warden, when, if it is thought fit, the area of 100 square miles around the point where gold is discovered will be proclaimed a gold field. Our exclusive right to that 100 square miles will then close; the public will be allowed to enter, but only so far as the gold is concerned, and we, of course, will have the right of applying for claims in the usual manner."

"Then you will forget all about the gold of gallant little Wales?"—"On the contrary; I shall again turn my attention to Golden Wales as well, and I hope at no far distant date to see gold obtained in Scotland and in Ireland."

## COMPANY FINANCE.

Reports, Balance Sheets, Dividends, &amp;c., of Mining and other Companies.

## LYDENBURG MINING ESTATES (LIMITED).

According to cable advice received from the head office of the company, the annual general meeting called for May 13 inst has been postponed to June 10, to be held at Johannesburg, when the directors' report to March 31, and balance-sheet and accounts to that date will be submitted. An extraordinary general meeting of the shareholders will also be held on the same day, and at the same place, for the following purposes:—1. To sanction the alteration of the name of the company, in accordance with an understanding arrived at with the Transvaal Gold Exploration and Land Company (Limited). 2. To sanction an increase in the number of directors, and to alter Clause No. 80 of the Articles of Association accordingly. 3. To alter Clause 129 of the Articles of Association from "At each ordinary general meeting the directors shall lay before the company a statement of the income and expenditure and a balance-sheet containing a summary of the properties and liabilities of the company, made up to a date not more than one month before the meeting," to "At each ordinary general meeting the directors shall lay before the company a statement of the income and expenditure, and a balance-sheet containing a summary of the properties and liabilities of the company, made up to a date not more than three months before the meeting."

## DE LAMAR MINING COMPANY.

The directors have declared a final dividend (No. 20) for the quarter ending March 31 of 1s. per share (free of income tax), payable on the 30th inst. to all shareholders on the company's books on March 31st, 1896, making a total distribution for the financial year ending at that date of 4s. per share, or at the rate of 20 per cent. per annum. Transfers deposited for registration on or before March 31 will receive this dividend. Holders of share warrants to bearer should lodge coupons No. 20 at the company's offices, 6, Drapers' Gardens, E.C., or with Messrs. Benard and Jarislowsky, 19, Rue Scribe, Paris. Coupons must be lodged five clear days for examination, and will be payable on and after the 30th inst.

## HAMPTON GOLD FIELDS (LIMITED).

This company has purchased Blocks 35, 37, and 39 from Hampton Plains Estate (Limited). These blocks are referred to in a circular recently issued by the latter company, as follows:—"Blocks 35, 37, 39. These blocks all present good conditions for the prospector, outcrops of gold occurring in many places. On Block 35, judging from appearances, an ample supply of water for condensing could be obtained at a shallow depth."

The Association of Mines of the South African Republic announces the following output for the month of March of the undermentioned companies, viz.:—ROODEPOORT UNITED MAIN REEF GOLD MINING COMPANY; MEYER AND CHARLTON GOLD MINING COMPANY; PRINCES ESTATE AND GOLD MINING COMPANY; VAN RYN GOLD MINES ESTATE COMPANY; GEORGE GOCH AMALGAMATED GOLD MINING COMPANY; WEMMER GOLD MINING COMPANY; LANGLAAGTE ESTATE AND GOLD MINING COMPANY; BLOCK B. LANGLAAGTE ESTATE GOLD MINING COMPANY (LIMITED). Total output 32,138 ounces.

The gold obtained on the properties of the MYSOBE WAT GOLD COMPANY (LIMITED) and the MYSOBE-WYNARD CONSOLIDATED GOLD MINING COMPANY (LIMITED) in February has been sold for £2487 19s. 4d.

The secretary of the ISLE OF MAN MINING COMPANY reports having sold on the 11th inst. 100 tons of this company's ore (chata), at £9 9s. per ton.

We are officially informed that the directors of the VICTORIA AND QUEEN GOLD MINING COMPANY will in the future declare dividends quarterly.

The share transfer-books of the GREAT BOULDER PRIMARY GOLD MINES (LIMITED) will be closed from April 20 to May 13 next, both days inclusive, for the purpose of holding the annual general meeting on May 6, at Winchester House, for the payment of a dividend of 2s. per share, free of income-tax, being the final dividend for the year ending December 31, 1895, subject to confirmation at the general meeting.



## MINING IN BRITISH COLUMBIA.

By W. PELLEW HARVEY, F.C.S.

In a recent communication the writer referred in a general way to the mineral resources of the Kootenay; following this up more closely reference must be made to the sub-divisions, the first being

## Lardean.

For some years, with the development of the mines in Kootenay proper, attention has also been paid to this promising division, situated within easy reach of the Canadian Pacific Railway, and the Columbia River from Revelstoke, on the main line of the railway. Although many good claims have been discovered, and in a recent date, but little development of them has taken place; however, it has shown that the chances of success are exceedingly good. The ore produced is galena, with antimony, zinc, bismuth, and some silver and little gold, and should be amenable to the sulphide process of treatment, as separation of either metal by this method would result in a considerable loss of silver, as this metal is associated to a great extent with the zinc of the ore. There are cases, however, where the product is almost free from zinc, as the appended assay will show.

Without presuming to mention all the properties which are worthy of special attention, the following will cover some of these, and the assays will speak for themselves:—

Mines.	Assaying about.		Lead.	Copper.
	Gold.	Silver.		
	Dwts.	Ounces.	Per cent.	Per cent.
North Star .....	10	23	.....	.....
Queen of the Hills .....	16	150	.....	.....
Black Prince .....	.....	150	.....	10
The Silver Cap .....	4	90	70	.....
The Silver Reef .....	.....	30	75	.....
Great Northern .....	.....	40	60	.....

There are a good many copper properties in the Lardean. The ore is a concentrating proposition in most cases, giving about 20 per cent. copper, and from 20 to 60 ounces silver per ton, with some gold.

Adjoining the Lardean is another division, locally called

## The Trout Lake.

Here the work done has shown up excellently; the increase in value of the ore as depth has been attained has resulted in a good deal of attention being paid to the camp by financial men and their representatives. Associated with the galena there is a considerable percentage of bismuth. Samples assayed by the writer have given as much as 20 per cent. of this metal. Situated on the north and south flanks of the Lardean Creek are seven claims of primary importance called the Pool Group after the discoverer. Assays show 1 ounce 10 dwts. in gold, 40-50 ounces in silver, and 2-8 per cent. copper per ton. On Seven Mile Creek are other mines more or less developed, showing galena, assaying over 100 ounces per ton in silver. On Eight Mile Creek we find the Gold King Mine and group with 5 ounces 10 dwts. in gold and 40 ounces silver. Other mines open for public investment are:—

	Assaying.		Lead.	Copper.
	Gold.	Silver.		
	Dwts.	Ounces.	Per cent.	Per cent.
The Horn Group .....	70	75	Trace	.....
The Knowles Group .....	.....	25	10	.....
Old Sonoma Mine .....	.....	145	4	8
True Future .....	50	100	3	.....
American .....	75	90	4	.....
Bad Shot .....	80	225	3	.....

and many others all about the same.

Aside from the base ore many quartz propositions, containing from 10 to 50 dwts. of gold per ton, have been discovered. The percentage of free gold is small, however. To properly treat the same it will necessitate the introduction of chlorination or cyanidation.

## Big Bend.

This is the name of another Revelstoke and Kootenay sub-division. There are a good many quartz propositions in the locality, but so far very little actual development has taken place.

## Yale District.

The ore of this district is milling, and entirely different to those of either of the Kootenays. Many mines are being worked on a small scale; the developments made last year are so encouraging that increased activity is expected in 1896. I hear that on Siwash Creek an American company is putting in a big stamp mill, the object being to treat the products of the mine they have secured, and also any material offered by other mines. The tailings will be concentrated and treated by the cyanide process.

## The Homestake Mine,

A property embraced in the Adam's Lake group, some 25 miles from Kelowna, via Sushwap Lake route, is the most developed in this subdivision of Yale. The lodes in this section course north-easterly, and are said to be on the same belt as the Kootenay Mines; the width of these is enormous. The rock is crystallized lime, containing a little copper, silver, gold, and antimony. The assays of silver ranging as high in cases as 700 ounces per ton, the average of this class of rock being about 50 ounces. Then there is another distinct vein of baryta, averaging about 25 ounces of silver per ton, and about \$250 in gold. On the Homestake the development has shown up an enormous body of this baryta, and as the grade is low and the assays such that wet concentration is impossible, there has been a question as to how the material can be best milled. It is said that the copper ore of the No. 1 ledge will have to be matted. The baryta will be treated on the spot by the Cassel Gold Extracting Company. Last spring very many methods were experimented with, including the Russell and cyanide processes. It was found that the latter showed better results than the others, and, contrary to general expectations, too. The writer conducted a series of tests on samples ranging from 100 to 1000 lbs. and over, and extracted 86-89 per cent. of the silver contained, and practically all the gold. The ore was first roasted after being dry crushed, with a small percentage of common salt for 1½ hours. This showed a loss of 6 dwts. of the silver contained in an ore of 16 ounces assay. The 15 ounces 14 dwts. ore (roasted) was treated with a 2 per cent. cyanide solution by agitation for 17 hours with an extraction of 89 per cent. of the silver and actual bullion recovery of 88-70 per cent. By percolation for 70 hours with a solution of the same strength, there was almost a corresponding result, the consumption of cyanide in the first case amounting to 3 lbs. per ton, and in the last to only 1-54, cyanide costing 24 cents per pound at Vancouver, and about 35 cents at the mine. The results shown have been checked in New York and Denver, and proved practically correct. In consequence, a New York franchise, headed by Dr. Jas. P. Kimball, has undertaken to go on with development at once, and the erection of a 50 ton a day plant within the summer.

This letter will be followed by another which will deal with East Kootenay, Cariboo, Fairview and Osoyoos, Alberin and the Coast. It will be noted that I have not referred to placer mining. I have not done so for the simple reason that I confine my attention particularly to quartz, and prefer leaving this, one of the most important factors in our gold mining industry, for special mention later on.

The warrants for the dividend of 10 per cent. declared at the general meeting of the MASHONALAND AGENCY (LIMITED), held on the 15th inst., have been posted.

WENTWORTH GOLD FIELDS PROPRIETARY COMPANY.—Warrants for the interim dividend of 1s. per share have been posted.

The list of applications for shares in the LADY MAUDE GOLD MINES (LIMITED) closed yesterday (Friday) at 4 p.m. for London, to-day for the country.

## BRANCEPETH COLLIERY DISASTER.

A TERRIBLE explosion has taken place in the Durham coal field, after an immunity from such accidents that has lasted now for a good many years. The accident occurred on Monday night, the 14th inst., in the Brancepeth A Pit, at Willington, one of a group of collieries belonging to Messrs. Straker and Love. The pit works three seams, of which the Brockwell is the lowest, and it is in this seam that the explosion took place. There are over 300 men at work here, in two shifts, as is usual, whilst the night shift consists exclusively of men engaged in deadwork, stonemen, wastemen, shifters, &c., whose duty it is to have the pit in readiness for the next day. The coal has never been considered a gassy coal, and the colliery has always been looked upon as a safe one, naked lights having been used in the workings till within the last 12 months. There have been no serious accidents here, although a few years ago an explosion occurred in a coal hopper at bank by which several lives were lost.

Just before half-past 10 on Monday night the engine-man felt a slight shock, and a little dust was seen to rise from the shaft, but there was no loud report nor any great cloud of smoke and dust, such as generally indicate that an explosion has taken place. None of the shafts were injured, and the main ventilation does not seem to have been greatly interfered with. As soon as the alarm was given a party of explorers descended the shaft, and soon found evidence of a violent explosion in a set of tubs close to the bottom of the shaft fairly blown to pieces. The stoppings were everywhere, blown down, and there had been many heavy falls blocking the roadways. Three men who were at work close to the shaft bottom were found uninjured, and two more who had been busy about a pump in a drift off the main roadway were also rescued, but of the 24 men known to have been in the pit these five were the only ones saved, so that it seems almost certain that 19 have fallen victims to the accident. Five bodies have been recovered terribly injured, mutilated in some instances almost beyond recognition, so that there were 14 still buried when the inquest was opened on Wednesday. The proceedings there were, however, merely formal, and nothing has yet transpired that affords any clue as to how the explosion was caused. The falls have been so heavy, and so much damage has been done to the stoppings which regulate the ventilation, that the explorers can make but slow progress, there being a great deal of after-damp collected in places; indeed, one of the explorers nearly fell a victim to this insidious danger, and was only just rescued in time. An accident of such serious importance, occurring in a district that had been practically free for a considerable period, has naturally aroused a great deal of public excitement, whilst sympathetic messages have been sent in from all sides. It is not likely that anything definite will be ascertained as to the cause of the accident for some little time. Up to the time of going to press 20 have been killed, and 9 bodies recovered.

## NOTES ON GOLD MILLING IN CALIFORNIA.

By ED. B. PRESTON, M.E.

Bulletin No. 6, issued by the California State Mining Bureau.

(Continued from page 461.)

The Bryan Roller Mill is a modified form of the Chili mill, built in sizes of 4 feet and 5 feet diameter. It consists of an annular mortar, with an outside gutter and spout, cast solid, containing steel dies arranged in the track of three crushing rollers, which in the 5 feet mill have a crushing face of 7 inches, a diameter of 44 inches, and weigh 3650 lbs. They have fixed axes, journaled in a central revolving table, attached to and driven by a belt pulley. This pulley is a cylindrical tank, which, in the smaller pattern, rests immediately on the rollers, and can be made to increase their crushing power by being loaded. The mortar is supplied with curved screen frames around the entire machine, the pulp being discharged all around into a gutter delivering through a spout, on one side, to an apron plate.

The chief wearing parts are the steel dies and tires on the rollers; these latter are fastened to the rollers by wooden wedges. According to the statement of the manufacturers (Ristell Iron Works, San Francisco), one set of these wearing parts will crush from 4000 to 8000 tons of ore in the large size, and 1500 to 2000 tons in the smaller size, and at the rate of 25 to 35 tons and 12 to 20 tons per day, with a speed of 30 and 60 revolutions respectively per minute, the smaller size requiring from 5 to 6 horse power. The oil channels for lubricating the bearings are arranged to prevent the oil from entering the mortar. To keep the pulp from baking to the rollers or dies, and to assist in equalizing the ore received from the feeder, scrapers with adjustable springs follow each roller. They are also provided with self-feeders. In operating the mill, ore, water, and mercury are introduced into the mortar, the pulp passing around next the screens in a current not less than 300 feet per minute, while the motion inside of the rollers is much slower. The amalgam, working its way toward the centre cone, is kept from being reground, and can be observed while the mill is in operation; it is claimed to retain 80 per cent. of the amalgam in the mortar. To clean it up, the dies between the rollers are removed, the pulp and amalgam taken out, and wooden blocks of the thickness of the die put in their stead, on which the rollers are revolved, when the remaining ones can be taken up. It is claimed for these mills that they wear smooth, and even while crushing hard quartz, discharge freely (on account of large screen area), avoid sliming and flouing of quicksilver, are good amalgamators, can be cleaned rapidly, are easily put in place, and require small power for amount of work done.

The Griffin Mill belongs to that class of mills using a roll running against a ring or die; but instead of several rollers, as in the Huntington, this has one roller only, swinging from a longer shaft, hung from a point in the central axis of the mill, and rotated about its own axis by the power applied at the top. It is run at a speed of 190 to 200 revolutions per minute, crushing from 1½ to 2½ tons per hour, the power being applied to a horizontal pulley above, from which the shaft is suspended with a universal joint, and the roller is rigidly attached to the lower extremity of the shaft. The roller swings in a circular pan supplied with a ring or die, against which the roller works; and carries on the under side scrapers or plows to prevent the pulp from baking. A circular screen frame is fastened on the pan, to the top of which a conical shield is attached at the apex, through which the shaft works. The pulley revolves upon a tapered and adjustable bearing, supported by the frame composed of iron standards, two of which are extended above the pulley to carry the arms in which is secured the hollow journal pin. The shaft is suspended to a universal joint within the pulley. This joint is composed of the ball or sphere with trunnions attached thereto, which work in half-boxes that slide up and down recesses in the pulley-head casting. The lubricant is supplied for all parts needing it through the hollow pin. The roll revolves within the ring die in the same direction that the shaft is driven, but on coming in contact with the die, it travels around the die in the opposite direction from that in which the roll is revolving with the shaft. A pressure by centrifugal force of 6000 lbs. is brought to bear on the material

being pulverised between the roll and die. The water is introduced with feed when running, and receives a whirling motion from the roll, which brings the pulp against the screens, 9 feet in area. A circular trough on the outside of the pan conducts the pulp to one side, where it discharges over an apron.

## Typical California Gold Mills.

As the details in milling practices of the several counties of the State vary greatly, the following typical mills have been selected to indicate the practice under varying conditions:—

No. 1. *Amador County.*—The ore is a soft, easily crushed quartz, with about 1½ per cent. sulphurets, and is largely mixed with slaty material, which, to the extent of 25 per cent., is found mixed with the concentrates. The stamps weigh 750 lbs. each, and drop 6 inches about 95 times per minute, discharging through a No. 8 slot screen at the rate of 2½ tons per stamp in 24 hours. The stamps drop in the following order: 1, 2, 3, 5, 4; Nos. 1 and 2 having ½ inch more drop than the other stamps; in the adjoining battery the order is reversed. Iron shoes and dies are used. There is an inside plate used in the battery, which retains about 75 per cent. of the amalgam. The apron is 48 inches by 13 inches, set on a grade of ½ inch to the foot, and the double sluices below are 9 feet long by 14 inches wide, with a grade of 1½ inch to the foot. From these sluices the pulp passes to vanners. To clean the sulphurets from the slaty admixture, a cradle, 12 feet long, 20 inches wide, and 4 inches deep, has been placed in the mill, run by an eccentric. The dirty slimy sulphurets are taken from the washing boxes beneath the vanner, and placed in a half barrel standing on the floor of the mill, into which a hose is lowered, and the sulphurets are raised from the barrel to the cradle by creating a vacuum, through a small jet of water under pressure forming an ejector. The pulp in the cradle is stirred vigorously toward the head; the grade is from 7 inches to 8 inches in 12 feet. This washing in the cradle relieves the pulp of about 25 per cent. of waste material. Twelve tons can be washed in a day. The canvas plant below the vanner has some interesting features. The canvas strips are only 12 inches wide. The pulp as it leaves the vanner is carried to a mercury trap, consisting of a box of diminishing width, with three upright divisions, under and over which the pulp flows. From the mercury trap the pulp falls into a long box, about 1 foot square at the ends, in the bottom of which are 10 holes, whose size is regulated by experience; they must equalise the discharge with the inflow from the mercury trap. The pulp introduced into the long distributor box sizes itself to some extent by gravity; the finer material being held in suspension longer, finds its way out at the end of the box, while the coarse quickly passes through the holes in the bottom, nearer the centre of the box.

There are 12 strips of canvas, 100 feet in length, each strip having a width of 12 inches, and a grade of ½ inch in 12 feet. The coarse material is all found on the six centre sections, the two outside sections on each side carrying the finer material. An additional series of tables, with 20 inches wide sections and a grade of 9 inches in 12 feet, receives the pulp after passing over the first.

No. 2. *Amador County.*—The practice of this mill in handling their tailings may be taken as an example of the better methods now practised in the State. This mill has 900 lbs. stamps, dropping 85 times per minute, with a 6 inch drop and a 7 inch discharge, kept constant by the use of lower chock blocks. No. 30 brass wire screens, 4 feet long and 4 inches wide, set vertical, are used, giving a duty per stamp of 2½ tons in 24 hours. The batteries are supplied with inside front plates. The apron plates are 46 inches by 33 inches, set on a grade of 1½ inches to the foot. These are followed by 18 feet of sluice plates, 15 inches wide, the first 10 inches of which are double. About 68 per cent. of the amalgam is recovered in the battery. The loss in quicksilver, which is introduced into the battery every half-hour, amounts to about 1½ cents per ton. The total cost of milling at these works is given as 70 cents per ton. The mill is supplied with three vanners to each battery, with 4½ inch belts. The pulp from the plate sluices passes directly to the spreaders of the vanners, a division into thirds being first effected. After leaving the belts, the pulp flows through sluices to a flume, where it is divided into two equal streams by the insertion of an adjustable division plate in the flume. The divided pulp passes to two steel screens with perforations of ½ inch and ⅓ inch respectively, which form the bottoms of two 4 foot boxes, 1 foot wide, set on a reverse grade of 6 inches in 4 feet. These boxes prevent any foreign substance from passing through into the sizing-box below, and clogging the outflow pipes. After the passage of the screens the pulp falls into a separator, consisting of a wooden V shaped trough, 6 feet long, 15 inches wide on top and 2 inches at the bottom, with a flat, funnel-shaped discharge pipe of galvanised iron attached at one end, ending in a round 2 inch pipe. As more pulp enters the separator than can be discharged through the 2 inch pipe, it fills and flows over the end into a launder; the heavier and larger particles sinking down and passing through the pipe. The overflow passes on a spreader that delivers it to a canvas table, with 10 sections; a second similar table, placed below, receives the waste from the first one. The tables are 12 feet wide, 13 feet long, and set on a grade of 1½ inches to the foot, and to secure a proper grade for the waste sluice, each section is set 4 inches below its predecessor. All the waste water passing from the tables is used a short distance off as power on an overshot wheel that runs a vanner, on which are worked the concentrates taken from the tables.

No. 3. *Butte County.*—The quartz carries considerable sulphurets. When hoisted from the mine it is dropped immediately over a grizzly, with the bars placed 1½ inches apart the coarse rock crushed is loaded into cars, and trammed to the mill, distant about 150 yards, and dumped into bins which are calculated to carry 1500 tons. From here chutes convey the ore to the Challenge self feeders. These are operated from the centre stamp in each battery. The stamps, which are supplied with steel shoes and dies, weigh 850 lbs., drop 7 inches, and about 100 times per minute; the discharge is 7 inches; the screen is No. 8 diagonal slot, 8 inches wide; each stamp crushes 2½ tons per 24 hours. The screens, which last about four weeks, are used later in the chlorination works for the recovery of cement copper. From the mortar the pulp passes over a 14 inch mortar plate; thence to a 4 feet apron and 12 feet of sluice plates; aprons and plates are set to a grade of 3 inches to the foot. The pulp then passes over the vanners, two for each battery, after leaving which it is conveyed to the canvas platform house. The canvas platform is 24 feet wide and 60 feet long, covered with x 20 canvas, and below it are 150 feet of settling boxes. The plates are scraped every day, and dressed besides, when required.

(To be continued.)

THE Canadian Mining Institute are arranging for a great Mining Convention in Toronto for 1897. Already invitations to send representatives to the Convention have been accepted by the Iron and Steel Institute of Great Britain, the Federated Institution of Mining and Mechanical Engineers of Great Britain, and the American Institute of Mining Engineers.



**C. PASS & SON (Limited), BRISTOL,**  
 ARE BUYERS OF  
 LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS,  
 ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES, &c.  
 and DROSS or ORE<sup>s</sup> containing  
 TIN, COPPER, LEAD, AND ANTIMONY.

**HENRY WIGGIN & CO. (Limited),**  
 NICKEL AND COBALT REFINERS,  
 MAKERS OF BEST RED LEAD FOR FLINT GLASS  
 MANUFACTURERS,  
 BIRMINGHAM.

### COLORADO MINING AND OTHER INVESTMENTS.

**THOMAS TONGE, DENVER, COLORADO.**  
 SPECIALITIES—Gold Properties; Leasing and Development  
 Syndicates.

CABLE: "TONGE, DENVER." Code, "A. B. C.," Fourth Edition.

**J. A. JONES, Mining Engineer,**  
 (M.Inst.M.M., M.N.Eng.Inst.M.M.E.)  
 GIJON (ASTURIAS), SPAIN.

### AUSTRALIAN MINERALS.

COLLECTIONS of AUSTRALIAN MINERALS for Show Case,  
 or for technical purposes supplied to order. Price from £2 2s.  
 upwards. On receipt of order with remittance a collection will be  
 made up and dispatched without delay.

MINES REPORTED ON.

**J. B. AUSTIN, Mineralogist, Adelaide, S.A.**

### LAMBERT'S WHARFAGE CO., PRINCE OF WALES DOCK, SWANSEA.

Ores, Mattes, Regulus, and Bars received and prepared for market.  
 Copper, Lead, Tin, Spelter, and Pig Iron Received, Weighed, and  
 Sampled, and Warrants issued against same.  
 N.B.—Warrants are on Accepted List of London Metal Exchange.  
 Regular lines of steamers from America, Europe, &c.  
 Good prices can be obtained for low produce Copper Ores. Send  
 air samples of not less than half a pound.

### THE AUSTRALIAN GOLD RECOVERY COMPANY (Limited).

(MACARTHUR-FORREST PROCESS).

All information and terms regarding Plants and the Licensing of  
 this Process can be obtained on application to:

**THE AUSTRALIAN GOLD RECOVERY CO. (Ld.),**  
 23, College Hill, London, E.C.

**JAMES R. FOWLER, Esq., 14, King William Street**  
 Adelaide; or

**GORDON WILSON, Esq., The Australian Gold Recovery Com-**  
 pany (Limited), Charters Towers, North Queensland.

AGENTS FOR THE CASSEY GOLD EXTRACTING COMPANY'S  
 MANUFACTURES OF HIGH GRADE CYANIDE.

### THE SCOTTISH AUSTRALIAN MINING COMPANY (LIMITED).

NOTICE IS HEREBY GIVEN, that the HALF-YEARLY  
 GENERAL MEETING of the SHAREHOLDERS of the  
 SCOTTISH AUSTRALIAN MINING COMPANY (LIMITED) will  
 be held at WINCHESTER HOUSE, OLD BROAD STREET,  
 London, on Friday, the 24th of April, 1896, at Twelve o'clock at  
 noon precisely, to receive the Directors' Report and Accounts, and  
 transact the other usual business of the Company.

By order of the Directors,  
**J. A. TURNER,**  
 for Secretary.

Winchester House,  
 Old Broad Street, London.  
 15th April, 1896.

### SHIPPING.

#### CASTLE LINE.—CAPE & NATAL MAILS.

WEEKLY SERVICE FOR THE GOLD  
 FIELDS OF SOUTH AFRICA.—The  
 CASTLE COMPANY'S STEAMERS leave  
 LONDON (East India Dock Basin, Blackwall)  
 every FRIDAY, and sail from SOUTHAMPTON  
 every SATURDAY.

Steamers.	London.	Southampton.
1 Pembroke Castle (via Canaries and St. Helena) ... ..	April 24	April 25
Tantallon Castle (via Madeira) ...	May 1	May 2
Warwick Castle (via Canaries) ...	May 8	May 9
1 Norham Castle (via Madeira) ...	May 15	May 16

Also for Madagascar and Mauritius.  
 Return tickets to all Ports.

Free Tickets by Castle Express from Waterloo to Southampton.  
 Apply to DONALD CURRIE and Co., 3, Fenchurch Street  
 London, E.C.  
 West End Agency, THOS. COOK AND SON, 13, Cockspur Street.

#### UNION LINE.

FOR SOUTH AFRICAN GOLD FIELDS.—  
 WEEKLY SERVICE.—CAPE OF GOOD  
 HOPE, NATAL, and EAST AFRICAN ROYAL  
 MAIL STEAMERS.—The UNION STEAMSHIP  
 COMPANY'S ROYAL MAIL and INTER-  
 MEDIATE STEAMERS will sail as follows for  
 SOUTH and EAST AFRICA, calling at MADEIRA  
 and TENERIFFE.

Steamers.	Antwerp.	Rotterdam.	Hamburg.	Southampton.
1 Moor (twin screw) ... ..	April 21	—	April 25	April 25
1 Spartan ... ..	—	—	—	May 2
1 Athenian ... ..	—	—	—	May 9
1 Greek (twin screw) ... ..	—	May 5	May 9	May 16

1 Calling at Madeira. 1 Via Teneriffe.

Free railway tickets from London and Plymouth to Southampton.  
 Cheap Tickets are issued for Passengers' Friends.  
 The Union Line Express is despatched from Waterloo Station (Main Line  
 Platform) every Saturday.

RETURN TICKETS ISSUED.

Apply to the UNION STEAMSHIP COMPANY (Limited), Canute  
 Road, Southampton; 14, Cockspur Street, London, S.W.; and South  
 African House, 94 to 96, Bishopsgate Street Within, London, E.C.

## The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

An Illustrated Record of Mining, Metallurgical, Railway,  
 Financial, Industrial, and Engineering Progress.

ESTABLISHED IN 1836.

THE MINING JOURNAL, RAILWAY AND COMMERCIAL  
 GAZETTE, published every SATURDAY MORNING, price  
 SIXPENCE, is recognised throughout the World as being the oldest,  
 most influential, and most widely circulated Journal devoted to the  
 interests which it represents. It circulates

ALL OVER THE WORLD.

Amongst Mine Owners, Capitalists, Investors, Mining, Metallurgical  
 Engineers, Manufacturers, &c., &c.

THE MINING JOURNAL, RAILWAY AND COMMERCIAL  
 GAZETTE has correspondents and sources of information in almost  
 every quarter of the globe. Its policy is absolutely independent;  
 its circulation is cosmopolitan.

THE MINING JOURNAL is neither controlled, nor is any  
 interest in it held or exercised, by any mine owner, speculator,  
 or syndicate; and it is in no way connected with any share-  
 dealing agency.

TO CORRESPONDENTS.—Letters on Editorial Matters, or containing  
 literary contributions should be addressed to "THE EDITOR." All matter  
 intended for insertion must be written on one side of the paper only. The  
 return of rejected manuscripts cannot be guaranteed. The Editor invites  
 correspondence and items of news or information from readers in all parts  
 of the World.

TO SUBSCRIBERS.—The Annual Subscription to THE MINING  
 JOURNAL, including postage, is for:—

The United Kingdom, £1 4s.;

Abroad, £1 8s.;

payable half-yearly in advance. It can be purchased at all Railway Book-  
 stalls and Newsagents throughout the United Kingdom for 8d.

TO ADVERTISERS.—The following is an abbreviated Scale of Charges for  
 Advertising:—Companies' Prospectuses, £12 12s. per column, or £30  
 per page; Companies' or Legal Announcements, 9d. per line, with a Min-  
 imum charge of 7s. 6d.; Sales by Auction, Publications, For Sale, Wanted,  
 &c., &c., 8d. per line with a Minimum charge of 4s.

Displayed (Trade) Advertisements of 2 inches in depth (or more), Single  
 Column measure, will be inserted at the following rates:—For 52 inser-  
 tions: 2s. 6d. per insertion for each inch in depth; for 26 insertions 3s.  
 per insertion for each inch in depth; for 13 insertions 3s. 6d. per insertion  
 for each inch in depth. Terms for special positions and contracts may be  
 had on application.

ADVERTISEMENTS (which should in all cases be sent direct to  
 THE BUSINESS MANAGER) can now be received for the forthcoming issue  
 of THE MINING JOURNAL, RAILWAY AND COMMERCIAL  
 GAZETTE, on FRIDAY, at 18, FINCH LANE, E.C., up till 8 p.m., and  
 at 3, DORSET BUILDINGS, SALISBURY SQUARE, E.C. until 9 p.m.

Editorial and Advertisement Offices:

18, FINCH LANE, LONDON, E.C.

Telegraphic and Cablegraphic Address: "TUTWORK, LONDON."  
 Codes used: "A.B.C.," "Moreing's," and "Universal."

### CONTENTS

Of this Number of "The Mining Journal, Railway and  
 Commercial Gazette," April 15, 1896.

NEW PATENTS ... ..	485
JOINT STOCK COMPANIES—New Registrations ... ..	485
CONTRACTS OPEN ... ..	485
MECHANICAL ENGINEERING &c. ... ..	486
A New Miners' Safety Lamp ... ..	486
COMPLETE AND CHEAP GOLD EXTRACTION ... ..	486
MANCHESTER GEOLOGICAL SOCIETY ... ..	487
GOLDEN NEW ZEALAND ... ..	487
MINING IN NEW ZEALAND ... ..	488
MEETINGS OF MINING COMPANIES— Pilbara United Gold Mines (Limited) ... ..	488
Mashonaland Agency, Golden Dove, Sierra Buttes Gold ... ..	489
Loma Gold, Tinctor, Carn Bras, Wheel Agar ... ..	490
DIARY FOR NEXT WEEK ... ..	491
PARIS LETTER ... ..	491
LATEST FROM THE MINES: Cablegrams and Telegrams ... ..	492
STATE OF THE SKILLED LABOUR MARKET ... ..	492
REVIEWS ... ..	493
MINING NOTES FROM JOHANNESBURG ... ..	493
CORRESPONDENCE ... ..	493
OUTPUT OF THE SOUTH AFRICAN MINES ... ..	494
BACK FROM THE GOLD FIELDS ... ..	494
COMPANY FINANCE ... ..	494
MINING IN BRITISH COLUMBIA ... ..	495
BRANEFETH COLLIERY DISASTER ... ..	495
NOTES ON GOLD MILLING IN CALIFORNIA ... ..	495
LEADING ARTICLES— What Lies Before Colorado ... ..	496
The Ferreira Company, Goldenhuis Deep ... ..	497
NOTES AND COMMENTS ... ..	497
THE MINING MARKET ... ..	498
NEW ISSUE ... ..	499
MINING IN CORNWALL AND DEVON ... ..	499
THE METAL MARKETS— The London Metal Market ... ..	499
"THE MINING JOURNAL" SHARE LIST ... ..	500-501
RAND MINES (LIMITED) ... ..	502
RHODESIAN MINING NOTES ... ..	503
REPORTS FROM THE MINES ... ..	503
THE BASSETT MINES (LIMITED) ... ..	507
THE RAND OUTPUT ... ..	507
PROVINCIAL SHARE MARKETS ... ..	507
BRITISH GUIANA'S GOLD INDUSTRY ... ..	507
VICTORIAN GOLD MINING ... ..	508

ADVERTISEMENTS—(See Index to Trade Advertisements, p. 482).

LONDON: APRIL 18 1896.

### WHAT LIES BEFORE COLORADO.

COLORADO'S position as a mining state is so extremely  
 satisfactory, both as to its actual present and in its pro-  
 phetic relation to the future, that there can hardly be a  
 more congenial pursuit for the local mining fraternity than the  
 lively anticipation of what may be thought, to lie before them.  
 Periods come in the history of all mining communities when  
 everything seems progressing so favourably that the future seems  
 assured. Such is now the case with Colorado. The substantial  
 and rapid progress made by the State, and writ large in the  
 Government output statistics, as well as the opening up to de-  
 velopment of large districts rich in the precious metals, are facts  
 sufficient to attest the solid grounding beneath these sanguine  
 views of forthcoming prosperity, and while they may not be wholly  
 realised—anticipations in connection with mining are not in-  
 frequently foredoomed to failure—they will, it may be confidently  
 anticipated, at least be largely justified in subsequent years.  
 From the retrospects with which the local scribes habitually  
 mark the opening of a new year, it appears that the last 12  
 months was a period characterised by steady progress,  
 and rendered particularly noteworthy by many rich dis-  
 coveries. New camps are opening up; old districts are  
 renewing their youth like the eagles; and altogether in

American metaphor—picturesque or slangy according to the  
 critic's taste—things have been "humming like a regular  
 hive of bees." The present situation is, indeed, characterised  
 by some particularly hopeful features. "Never before," says  
 a sanguine local oracle, rising to something like a thanksgiving  
 psalm—"Never before was there a greater number of miners at  
 work; never before was there a greater amount of development  
 work being done, which will bear fruit in 1896 and future  
 years; never was there a more general and steady increase of  
 gold ore production along the whole line, or a better prospect  
 for a continuance of such increase; never was there a greater  
 proportion of Colorado capital invested in mining, or a less  
 proportion of outside capital."

These reflections, moreover, are fortified by the fact that the  
 Colorado output is not confined within any narrow limitation,  
 but can reckon 20 counties as contributories towards its total.  
 Cripple Creek—in the general interest it has awakened, at any  
 rate—heads the list, and may be safely taken as the district upon  
 which the greatest expectations for the future are founded. So  
 much has latterly been written in our columns upon this particular  
 district—notably by Mr. RICKARD and Mr. TONGE—that to treat  
 it at length and in detail would now be superfluous. As Mr.  
 RICKARD pointed out, Cripple Creek is the youngest-born and  
 somewhat spoilt child of Colorado State, and has thus received  
 rather more than her fair share of general attention and praise.  
 At the same time, the bare and unvarnished record of simple  
 facts in connection with the camp is sufficient to justify its claims  
 to be regarded as a mining district of very considerable promise.  
 At the present time the daily output may be taken as about  
 500 tons of ore, averaging 3 ounces per ton. Ore which else-  
 where would be regarded as fairly rich is here reckoned as  
 "poor," and where the miners can afford to exercise so nice a  
 discrimination, the locality must necessarily be rich in mineral.  
 Even in a country where villages spring up and grow into towns  
 with marvellous rapidity, the lightning speed with which  
 Cripple Creek has developed from a mere collection of  
 huts, tenanted by about 50 people, into a town—or city—in-  
 habited by 50,000 citizens of a free and enlightened Republic,  
 has excited unusual surprise. Five years ago the Creek as an  
 industrial centre had no existence; to-day it is a busy mining city.  
 As with many another promising gold field, the enthusiasm  
 now awakened over Cripple Creek has given opportunity for the  
 play of those agile and unwelcome gentry who are known as  
 "jumpers," and who are ever ready, with a complacent dis-  
 regard for other peoples' feelings, in which they are supported  
 by law, to take advantage of some technical omission and eject  
 owners from their claims. The consequences are disastrous to  
 solid enterprise, and are fostering a decline to the conditions  
 of life ruling some hundred and fifty years ago, for knots of  
 pugilists in good fighting trim are being hired to defend the  
 claims against interlopers, with results that can easily be  
 pictured in imagination.

Other districts than Cripple Creek—Leadville, Gilpin, San  
 Miguel, and Boulder, for instance—are also now coming well to  
 the front, with increased production, and the spirit of activity  
 ruling in one has very naturally communicated itself to the  
 rest, with the most satisfactory results. There is, besides,  
 what is generally described as a healthy spirit of rivalry ruling  
 between districts, as between cities, which leads to progressive  
 leaps in the output figures. Within certain limits the history  
 of one mining centre is similar to that of others, and the  
 advances made by each individual district, when aggregated,  
 speak very well for County Colorado as a whole. In the result,  
 there has latterly been a large accession of business activity in  
 the whole district, which acts and re-acts upon each city and  
 camp, in ever-widening circles of expansion, until its effects are  
 very far reaching upon the whole internal industrial and com-  
 mercial life of the State. The benefit thus conferred upon the  
 farmers, fruit growers, coal miners, and railroad owners is very  
 substantial in extent, and it is hardly necessary to point out  
 that in a great measure these industrial branches depend for  
 ultimate prosperity upon successful mining. The Colorado  
 people are congratulating themselves on the fact that the  
 greater part of the capital embarked in the local enterprise  
 belongs to themselves, and they are glad, as they term it, that  
 the country is not being drained of its wealth in dividends.  
 This is assuredly rather a narrow way of looking at the question,  
 for Colorado, in common with most other mining States, owes  
 no small share of its prosperity to English capital and  
 English enterprise. There is nothing graceful about the  
 tactics of those who in times of depression eagerly solicit  
 outside help, but who, when favourable results are being  
 realised, are never backward in regretting that the golden  
 fruits are going to "outsiders." There is said to be  
 an abundance of money lying about in the American  
 banks awaiting investment, and now that general confidence  
 in industrial enterprise appears to be reasserting itself, these  
 stores may possibly be drawn upon to feed the mining activity  
 in the district. There is naturally the reverse of the shield,  
 and in this case it takes the form of the flotation of a number of  
 worthless concerns, and a taste for indiscriminate speculation which  
 brings with it certainly its own punishment in failure and loss.  
 Here, as elsewhere, it is much to be regretted that investors in  
 their choice of objects for the embarkation of capital do not  
 exercise some gift of discrimination; or, if themselves al-  
 together without mining experience, why they do not call in  
 somebody qualified to advise them, so that their operations may  
 at least be characterised by some probability of future success.  
 Neglecting such precautions almost invariably lands the in-  
 vestor, or speculator, into difficulty, which might easily be  
 obviated by early precautions, and the exercise of that business  
 aptitude which in ordinary matters is rarely enough waiting.  
 "I verily believe," says the President of the First National  
 Bank, Denver, "that to-day no State in the Union promotes  
 either the number or variety of opportunities for judicious, safe,  
 and profitable investment that Colorado does, provided always  
 that the investor makes a thorough and business-like investi-  
 gation before investing." This is a sanguine view as to the present  
 outlook in Colorado, tempered by some sound practical advice  
 that mining men would do well to follow.



## THE FERREIRA COMPANY.

**A**MONG the great and prosperous gold mining companies of the Rand, the Ferreira stands in the very front rank, and as a sound and legitimate investment it has no superior. The Chairman of the company describes it as "the best worked, best equipped, and best developed mine on the Rand," and though some exception may be taken to this in one or two quarters, it is certainly deserving of such high praise. At any rate, it is one of the richest, the ore being of a very high grade in comparison with most of the companies. The yield is also very regular, and it is not anything like so inconsistent as that of many others. It is a company which up to the present has had a distinguished career, and it is one which may anticipate a future of exceptional brilliancy. The working of the past 12 months has been extremely satisfactory. During this period 61,250 tons of ore have been crushed, yielding 60,291.46 ounces of gold, of the value of £214,886 12s. 4d. The profit on the treatment of tailings amounted to £37,345 7s. 3d., whilst the sum obtained by sale of concentrates amounted to £45,020 7s. 1d. The working expenditure, which includes the sum of £15,937 19s. for mine development redemption, came to £105,579 11s. 8d., making a working cost of 25s. 7-745d. per ton. The details of expenditure on capital account during the 12 months are as follows:—Machinery and plant, £83,259 1s. 3d.; buildings, £3761 4s. 11d.; permanent works, £12,711 1s. 2d.; development, £34,036 7s. 3d.; slimes account, £222 19s. 9d.; furniture, £501 19s. 1d.; sundries, £517; total, £115,009 13s. 5d. The cash profit for the year amounted to £132,249 16s. 5d., to which must be added £15,000, being the sum received for 1000 reserve shares, and £80,886 6s., being balance brought forward from the previous half-year, making a total of £268,136 2s. 5d., which is accounted for as follows:—Capital account, £115,009 13s. 5d.; dividends (Nos. 8 and 9), £103,000; leaving a balance of assets over liabilities of £50,126 9s. The treatment of tailings gave the following results:—Tons treated, 35,917; yield, 12,755.95 ounces fine gold; yield per ton of ore crushed, 4.843 dwts. During the year 2207.456 tons of concentrates, yielding 13,872 ounces 5 dwts. 1 grain of fine gold, or 5.258 dwts. per ton of ore crushed, were sold. The profit after treatment amounted to £45,020 7s. 1d., equal to £20 7s. 11-54d. per ton. From the mill the average yield was 19.685 dwts. per ton. The amount of gold won from all sources was 90,979.83 ounces, equal to 29.705 dwts. per ton of ore crushed. It will thus be seen that the profit averaged some £12,000 a month, and bearing in mind that this was the result of working with 40 stamps for two-thirds of the year, and for about three months with 65 stamps, a much larger profit may be expected when the full 80 stamps are at work.

Thus the brilliant results of the past year's working have enabled the directors to declare a dividend of 130 per cent. This exceeds the prediction of the Chairman made at the meeting held 12 months ago, but it was then known that his estimate was by no means a sanguine one, and those who had closely watched the career of the company quite looked forward to a larger dividend than he foreshadowed—viz., 100 per cent. But even this dividend will be put into the shade by a much larger one which will be earned during the current year. The Chairman thinks the shareholders may well look forward to no less than 200 per cent., but this, again, may be regarded as a minimum dividend, and it will certainly be surprising if, at the end of the year, the profits will not enable them to declare 250 per cent. In making this estimate there are several things to be taken into consideration. In the first place, the 80 stamps will be in full work, and there is no likelihood of the yield deteriorating when one takes into consideration the value of the Main reef and Main reef Leader and the increased sorting appliances which have been erected. The main intention, when contemplating the erection of the extra 40 stamps, was to crush a portion of the main reef leader. Then, again, the costs are likely to be somewhat reduced during the current year, and this, of course, will go to swell the profits. In other respects the company stands out conspicuous amongst the majority of the companies on the Rand, inasmuch as it has been extremely fortunate in meeting with few difficulties and obstacles to retard mining operations. It has not suffered through a scarcity of native labour; in fact, the company all along has had a full supply, and at the present moment there is no sign that it will be decreased. The exceptional position which the company now occupies is due to Mr. J. HARRY JOHNS, the general manager, and his able staff, and it is quite natural, therefore, that the Chairman, directors, and shareholders should repose every confidence in this gentleman securing the future prosperity of the concern. In the Ferreira the three principal reefs of the Rand series—the Main reef, Main reef Leader, and the South reef—are all encountered in this mine, and underlie practically the whole area. The Main reef and the Leader are some distance apart in the eastern portion of the mine, while in the western they lie together. Of the three, the South reef has hitherto supplied the milling ore, and as it goes down in depth it widens out and shows no diminution in quality, but rather promise to be better. The reefs dip at an angle of 72° to 76° at the outcrop. At the 420 level the dip is about 67°, and at the 620 level about 49°, while the lower workings give a dip of about 30°, thus showing very marked flattening. In the upper levels the Main reef and the Leader were not thought to be of much value, but as development proceeded they were seen to become much richer, and they will now play an important part in the future of the mine. Now that calculations have been made at the Main reef and the Leader, it is very difficult to give an estimate of the probable future of the mine. Last year, when the amalgamation of the deep level company was being arranged, Mr. JOHNS made an estimate on the South reef only, and arrived at the conclusion that there were 200,420 tons of reef remaining, which was equivalent to a life of four years. Owing, however, to the flattening of the reefs in depth, the addition provided by the amalgamated company is about 600 claims, estimated on the flat. The surface area is

31.6 claims, and the dip of the reef 30°. This would give, therefore, some 365,000 of South reef, and the total, taking 150,000 tons as the amount still left in the outcrop claims, will be 515,000 tons, thus putting the life of the mine with 80 stamps at about five years. The Main reef and the Leader are, however, practically intact, underlying 49 claims, which, with a dip varying from 76° to 30°, gives a flat area of 67.5 claims. An independent person has given the probable life as 14 years, and this may be looked upon as a minimum estimate, whilst there is every probability of its being prolonged to several years. These few figures will suffice to give some idea of the brilliant future awaiting the company—a future which is not so generally realised as it should be.

## GELDENHUIS DEEP.

**B**y this week's mail we have received particulars of the annual meeting of the Geldenhuis Deep (Limited), which, in view of the effects caused by the first crushings from the mine, is exceptionally interesting. It will be within the recollection of our readers that great consternation was caused when the first crushings were made public, the low yield creating general depression. In a moment the mine and all deep levels were condemned, and the public rushed madly to sell their shares in properties of this class. But like most of the scares which for a time upset the mining market, this was only temporary, and confidence was again restored when the explanations were forthcoming. We counselled our readers to be calm and patient, inasmuch as we were firm believers in deep levels, and were confident that when there was an adequate labour supply, and everything in a more perfect working condition, the yield would show a decided improvement. Up to the present it has not done so, as was to be expected, for time is needed to overcome the present somewhat formidable obstacles. At the meeting in question Mr. PERKINS, the general manager, gave an elaborate explanation of the low yield, and those who read it must be satisfied with it, and reassert their faith in the future of the company. But they must be patient, for no tangible improvement can be expected for some time to come. Mr. PERKINS says:—"Respecting the yield per ton, the quality of the ore treated has been lower than the normal for the reason that 33 per cent. came from the development dumps (that is, ore broken when driving the development drifts). Furthermore, the ore from the mine has nearly all been broken by air drills, using which prevents a selection of the better portion of the reefs. In starting the enterprise the difficulty of getting sufficient labour was anticipated. It was thought, however, that by breaking the ore in the richer portions of the mine, and making up the shortage from the surface dumps, an average grade could be obtained. This hope proved misleading, for we now find that our knowledge of the mine obtained by sampling during the time of development does not enable us to benefit by selection. Often where the levels showed rich ore, the stopes yielded poor, and where the stopes proved rich the levels have been poor; in fact, without present knowledge of the mine and breaking ore in large quantities with air drills, we have not got a better grade of ore when attempting to select it than when mining regularly with no attempt at selection. Furthermore, the actual bullion recovered from the ore treated has been largely diminished by the absorption of the plates and cyanide works. The average assay of the ore taken from the mine has been 12.9 dwts. per ton, or 51s. 6d. Estimating from the general experience on the Rand, there should not be less than 70 per cent. of this recovered, or (say) 36s. per ton; therefore, if the ore had all been taken from the mine, and if we had been able to clean up the usual proportion of its contents, the yield would have been 36s. instead of 18s. per ton."

Mr. ROULIOT, the Chairman presiding at the meeting, not only confirmed this, but warned shareholders that they must not expect full returns at the start, and that still better results could have been expected, and would have been obtained, had it not been for the difficulties encountered. He specially pointed out for the information of shareholders at a distance, less acquainted with the prevailing conditions than those on the spot, that the ore raised from the mine, notwithstanding the undue amount of waste rock mined with it through the use in the stopes of air drills, has an assay value of about 12 dwts.; but, owing to the want of labour, the company had been able to raise only about 260 tons a day. He also pointed out that the starting of a large mill on a new mine is a big undertaking, and that at the start knowledge of the mine is necessarily limited, variations in the richness of the ore frequently occurring, the stopes being at times poor, where assayed rich in the drive, and *vice versa*. When a mine is working at its full capacity, this averages itself, but at the start any attempt to select ore would prove futile. In order to give from the beginning an average return in the mill it would be necessary, on account of the absorption of new works, to crush ore of a superior value; but owing to the difficulties enumerated, the company sent to the mill ore of a value below the average. He also impressed upon the shareholders the fact that it requires a large amount of gold to set new plates, and provide for absorption by new works generally. As affording an idea of the amount of gold that can thus be absorbed, he instanced that a few weeks ago the company steamed, after 4½ months' run, five outside plates, and obtained nearly 600 ounces of gold, which means that the 100 stamp mill has absorbed to set the plates between 2500 and 3000 ounces of gold.

As for the financial position of the company, it is fairly strong. It has £150,000 debenture debt, and creditors to the amount of £68,000. On the other hand, it has debtors and cash, £14,000; stores, £24,000; an equipment consisting of shafts, mills, cyanide plant, &c.; a tonnage developed of about 900,000 tons, and 70,000 reserve shares. After this full explanation we think that confidence in the Geldenhuis Deep in particular, and in deep levels in general, will be quite restored. As for the imme-

diate future of this particular company, it cannot be regarded as at all assured, being dependent, as it is, upon conditions which are at present uncertain. The chief, of course, is the labour difficulty, and no one can foresee when that problem is likely to be solved.

## NOTES AND COMMENTS.

THE report just to hand of the annual meeting of the Rand Mines (Limited) affords interesting reading to the large section of mining investors who are interested in deep level mining. The undertaking in question differs materially from the ordinary mining enterprise, not only in the magnitude of its operations, but also in the high importance of its working, viewed from the standpoint of the whole Transvaal industry. The future of the Rand and the future of the company may be said to be indissolubly connected, since both depend upon deep levels—a fact which gives particular importance and interest to the reports respecting the various properties which were presented at the recent meeting. In the majority of cases these are most encouraging in their bearing upon the future of deep levels, and will go a long way to revive and strengthen confidence in the future of this description of property. The great deep level question—for great it certainly is—is not yet altogether settled for all time, but each year brings us nearer conclusion on the point. In any case, the Rand Mines are preparing a highly useful service to the Transvaal in carrying forward their exploration works.

THERE was a good deal of encouragement conveyed in the statements made at the recent statutory meeting of shareholders in the Pilbarra United Gold Mines. From the Chairman's statements it appeared that the directors have acquired five leases, comprising in all an area of 80 acres, and situated in a well-known gold-producing district of Western Australia. So far but a small amount of development work has been carried out on each of the properties, but the results which have been attained are regarded by the company's engineers as arguing very well for the company's future. At present the shaft of the Coongan Star property has only been sunk to a depth of 90 feet, and, so far as proved, the reef in this portion of the company's holding averages 2½ ounces to the ton. This statement does not rest upon any very small crushing, for a bulk of 300 tons of quartz put through the mill produced no less than 800 ounces of gold, which gives even a higher average. The company, however, are not confined in their prospects to the Coongan Star. They have, in addition, four other properties which were amalgamated for purposes of economical working, and the reports submitted of the work already carried out go to show that they are gold-bearing areas of no mean capacity. So far as facilities for working are concerned, the company would appear to be favourably situated, inasmuch as the water difficulty has no meaning for them, water in large quantities having already been struck. Indeed, the conditions of working would appear to be so favourable that, according to the engineer consulted by the company, a yield of ½ ounce to the ton would be sufficient, not only to cover cost, but to provide for the payment of dividends. This fact, taken in conjunction with the yield already obtained from bulks of the company's ore, is, as we have said, all of an encouraging nature, and should the company's operations in the future turn out similarly satisfactorily—no unexpected misfortune intervening—the day of dividends ought not to be very far distant.

INDUSTRIAL writers who go into folk-lore for their illustrations habitually describe Western Australia as the Cinderella of the South-eastern Continent. The parallel, however, fails in one important particular. If our somewhat hazy memories of juvenile literature do not mislead us, the prospective princess was afflicted with the relationship of several jealous and envious sisters, who looked malignantly upon every piece of material prosperity which fell to her lot. It cannot in the same way be stated that West Australia's sudden celebrity and good fortune have given rise to any ill-feeling among the sister colonies. This is the more satisfactory, and, in some small degree, remarkable, since the more sober and steady-going colonies have at the outset undoubtedly suffered in some ways from the brilliant and all-absorbing prosperity attained by Western Australia. Already we have more than once drawn attention to the draining process which, under superior attraction from Coolgardie and the Murchison, is diminishing, if not exhausting, the supply of mining talent and enterprise available further east. The necessity for some counter influence to keep the economical balance from swinging too decidedly upon one side has been widely recognised, and what may be described as several small opposition boomlets have been set going from Adelaide and Sydney. This rivalry is wholly friendly in character, and detracts nothing from the disposition to recognise the broad basis of interests common to all, which draws the various provinces into that union of feeling which must precede federation in political actuality. Newspapers devoted to Victorian and Queensland mining publish long cables from Coolgardie describing in detail each step forward in the development of those favourable mining regions. Much of this sympathy and, if the term may be allowed, good comradeship finds its origin in the discernment that any jarring of interests between the colonies is, at most, only superficial, and that the deeper one goes into the examination of economical conditions proper to Australia, the more will the solidarity of interests become apparent. There is every reason to suppose that the force of this fact is receiving greater attention every year, and that the movement towards a politically united and federated Australasian Continent is slowly but surely approaching fruition. After all, M. Blouet may be wrong in supposing that British Imperial Federation is merely an unrealisable dream.



The English capitalist and investor need not be greatly exercised as to the prohibition which the French have put upon the introduction of any but their own capital into Madagascar. The fact that the wholesale expulsion of all industrialists who have had the misfortune to be born under other flags than the tricolour, and under less pretentious and idealistic watch words than "liberty, equality, and fraternity," finds no counterpart in any regulation imposed upon our side, does not give the matter, for us, anything but a ludicrous aspect. We have in our own colonies sufficient crude and promising territory to develop without recourse to the euphoniously-named aggregation of fever swamps beyond the Mozambique channel. Our amiable neighbours might retort in that spirit of sparkling humour which is so eminently Gallic that we have rather more lumps of raw territory on our hands than we can comfortably digest, but as has been before hinted in our columns, any comparison of colonial achievement among European nations need bring no blush to our cheeks. There could be for us no more pleasurable spectacle than a really thriving French colony off the African coast. Not only would it possess the attribute of novelty, but it might even go some way towards lessening the somewhat acrimonious sort of barking, that under existing circumstances invariably accompanies any movement we presume to make at any of the four cardinal points of the compass.

The French then intend the valoriously acquired territories of the Hova Queen for home exploitation. Good luck to them! May they get more yellow metal than yellow fever out of the transaction.

A SOUTH AFRICAN paper mooted in a recent issue an important question which has exercised to a considerable extent the minds of more than one generation of industrial philosophers. Looking with a critical eye upon the gold-producing industry of Australia, the authority in question finds much fault with the evils resulting upon a lack of proper State control. A reward having been paid for the initial discovery of gold, the mineral resources of the colonies in question have, it is contended, been left to take care of themselves, with the merest apology for regulation on the part of the governing body. The accuracy of this view of the actual fact may very easily be called into question. So large is the dependency of Australasian revenues upon the mining industry that the Government can certainly not afford to ignore them, nor is there, according to our thinking, any evidence that the colonial governments have been animated by any such ill-judged intent. The very contrary is, in fact, the case. By judicious and timely money grants, by the provision and perfecting of the means of communication, and by judicious legislation—judicious, at least, in the main—the Governments of the Australasian colonies have done at least a great deal towards furthering the interests of the industry. There is, as some people do not seem to be aware, an extreme to be avoided. Too much officialism and tight control is certainly a great deal worse than none at all, since it is very certain to destroy individual initiative and lessen industrial self-dependence. With all their bureaucratic perfection the Continental nations do not seem to be able to colonise successfully.

ALTHOUGH there are certain matters of international policy which our present Cabinet have not yet succeeded in bringing to a definite settlement, it cannot be denied that the outlook in this regard is much brighter than it was two months ago. Time's softening influence has done great things for us. The three great questions which were, after all, gold mining questions—the Transvaal, Ashanti, and Venezuela—are much nearer finality than they have been for a long time past. One—the difficulty created by King Prempeh's sudden stroke for complete independence—has reached something like a satisfactory conclusion, while it may also be said that there are now very few who seriously fear a troublesome termination to the dispute about the Venezuelan boundary. At the most we shall lose a stretch of territory that, according to our own notions, ought to belong to us, and even that is a by no means certain eventuality. The Transvaal question, with all its involutions, has, it must be confessed, a darker complexion, and the unfortunate influences which have combined to discomfit the South African market during the past quarter of a year may not yet be at an end. The question whether President Kruger will come to England for the purpose of talking over the situation in a friendly manner is involved in considerable obscurity, opinions being divided as to the sincerity of his intention. In any case, the whole position is far from favourable in character, and the Transvaal has still to be reckoned as the dark spot in British diplomatic annals.

SOME of the most remarkable feats ever performed in connection with journalism are those accomplished in the representation, through a literary medium, of the newly-attached mining districts in different parts of the world—especially in South Africa. Even if the importation of a printing press and other paraphernalia of a kindred sort into these new spots in the Old World were possible, it could hardly be remunerative, so that the people in question have to content themselves with less satisfactory materials for their enterprise. An instance of remarkable achievement is before us now in the shape of a late number of *Le Reveil de Manica*—a publication struck off by a cyclotype, and containing an eloquent appeal in three languages for greater activity in connection with the local mining industry, and for a more favourable control on the part of the authorities. As we have before pointed out, an examination of the newspapers published in any mining district will afford a fairly reliable indication as to the state of the industry in the locality, and the inception under particularly unfavourable conditions of the print in question lends considerable justification to the view that there are favourable elements in the industrial situation at Manica. Indeed, the burden of the leading article in the current number is to deplore the lack of spirit exhibited by the authorities in failing to keep pace in

the matter of public works with the general advance registered by the mining confraternity in Manica. If Manica follows the lead of some other towns that have commenced in a similarly unpretentious manner, we may expect shortly to see considerable mineralogical development proceeding in this comparatively little known part of the Dark Continent.

THE prophecies with which the reign of the new Russian Czar opened were mostly of a political character, and were without commercial significance, but if the local observers are to be trusted a new commercial era has dawned upon the Empire, during which the foreigner will have an opportunity of competing upon almost equal terms with the Russian subject. So far England does not appear to have participated so largely in the new industrial activity as the other Continental nations, Belgium especially being well to the front in this particular. Nor, strangely enough, do the French appear to be able to turn to commercial account the newly-formed friendship which they have so eagerly cemented. During a comparatively short period the Belgians have started no fewer than 31 new undertakings, most of them in metallurgical directions and located in South Russia. English capitalists do not seem altogether to be able to overcome the traditional prejudice which was formed against Russia at a time when things were altogether on a different footing than they are now. But while they have been slow to appreciate the change which has taken place, they are gradually coming to regard with greater confidence a sphere of commercial activity which holds out so vast a promise of future development. Some time since a knot of English capitalists were negotiating for a large auriferous tract in Siberia. The result has not yet come to hands but from the circumstance that nothing has transpired, as to the conclusion of the negotiations, it may be surmised that they have either resulted abortively, or are still in progress. There have been the usual outcries from the Russian journalistic offices to the effect that foreign capitalist influence is indisputably dominant in the Southern Russia, but, proceeding upon a sound economical method, it is difficult to imagine how anything but good can possibly come out of widely-expanded industrial activity, even from the Muscovite standpoint.

## THE MINING MARKET.

FRIDAY EVENING.

A slump in Chartered depresses the whole Kaffir Market.—West Australians dull, with unimportant changes.—Indians firm.

THE first three days of the current week, as well as the preceding Saturday, were taken up with the arrangement of the seventh Settlement of the year. Very little improvement can be reported in the volume of business, so far as the public are concerned, though members of the House do their best to give colour to the suggestion that business is improving. A story has gone the rounds to the effect that one of the biggest men in the Kaffir market is sending his clerks away for their holidays now, so that the full force of his assistants may be available for the boom that is coming in the Summer and early Autumn. The news from Matabeleland is hardly calculated to set the lay public speculating, and it is not easy to foresee when the present period of tension will come to an end. In the Westralian Market the feeling is growing that tangible results must be forthcoming now before any great extension of general interest can be expected. The investing public have already bought all the shares they want for the long shot. If they are to increase their commitments, they must have crushing and dividends by way of encouragement.

On Saturday the making-up absorbed attention to the exclusion of new business, but prices generally were firm. On Monday Kaffirs and Westralians were almost featureless, whilst Indians were generally better. The strength of Indians was the feature again on Tuesday, whilst steadiness was observable in the other departments. Kaffirs were inclined to improve on Wednesday, and a firm tone characterised Westralians, though the business doing was small. Rand shares were steady on Thursday, but Chartered had a heavy break in the Street. Westralians were dull, and Indians a shade weaker. Some strength was shown by the New Zealand group. The feature to-day has been the persistent "inside" selling of Chartered, which close a shade above the worst. The spreading interest in Home Rails has been responsible for the accession of several jobbers of the migratory class who have temporarily transferred their allegiance to the Mining Market.

### South Africans.

The arrangement of the Account on Saturday morning was easily effected, the open position not appearing to have undergone any increase. Rates were rather easier than usual, the Contango on Gold shares averaging from 5 to 7 per cent. Goldfields were carried over at even to 3 per cent., and East Rands at even to 2 per cent., but in the later dealings the rate disappeared altogether. Chartered were carried over even to start with, and in succeeding fluctuations the Contango was never more than 3d. A significant change of front was marked in Johannesburg Investment, upon which some onerous rates have been exacted in the past. Opening at 5 per cent. the rate quickly ran off altogether, indicating the extinction of the bull account, which at one time threatened to become cumbersome. The market had a topic of conversation in the imperfect crushing return from the Rand for March. The figures which showed a large decrease were admittedly misleading and valueless, owing to the fact that several of the large producers were excluded from the return, the Robinson Companies among the number. Amended figures were afterwards produced, showing that on the old basis of calculation the total output gave evidence of increasing prosperity; but as these figures lack the official stamp they can hardly be regarded as a satisfactory equivalent for the statistics that were accepted by the market before the split occurred in the Chamber of Mines. Once more the dealings in Chartered have represented the lion's share of business in the Kaffir Market. There are operators who contend that the light Contango which has ruled at recent settlements does not represent the actual state of the account in these shares. It is suggested that numerous dealers who have sold their shares are refraining from delivery so long as they can obtain even nominal Contango rates, but that the

establishment of a backwardation would be the signal for large deliveries of stock. This suggestion must be taken for what it is worth. Personally we are inclined to consider that a large bear account has been up to the present at the bottom of the comparative strength of Chartered in the face of news from Rhodesia, which cannot be regarded otherwise than as disturbing. Day after day has emphasised the fact that the Matabele trouble is too serious to be practically ignored as it has been by the market. The reply of Mr. Chamberlain to a questioner in the House as to the cost of the expedition for the suppression of the rebels puts an end to any doubt as to the fact that the Chartered Company will have, sooner or later, to provide for a very heavy expenditure. A week ago we left Chartered at 4½, but on Saturday they were at one time offered as low as 3½, but rallied strongly before the close. On Monday they were round about 4 all day in the House, giving way to 3½ in the Street. This was the closing price again on Tuesday and Wednesday, but after hours on Thursday there was a sharp fall to 3½ on sales attributed to a well known member of the "inside" division. Up to the present no special news has transpired to account for the flatness which was maintained at this morning's opening. But experience is teaching the market that official information does not find its way into circulation until sufficient time has elapsed to render difficult the connection of cause and effect. In the last hour of this afternoon's House dealings a determined raid was made upon Chartered, which were at one time offered at 3½. At the close of the House, the price was slightly harder at 3½, making a fall of ½ on the week. The selling was evidently inspired, but we are left in a state of suspense as to its cause until such time as it may please those in authority to make their announcements. Rhodesian Companies have naturally shared in the depression, though movements here have been sympathetic rather than the result of active dealing. Rhodesia Exploring are ½ down at 5½. Willoughby Consols have lost ¼ at 1½, Bechuanaland ¼ at 1½, Mashonaland Agency ¼ at 2½, Parry's ¼ at 1½, and Oceana ¼ at 1½. Rhodesia Mining and Finance at 1½, New Africa at 4, and Exploring Land and Minerals at 1½; all remain on last week's mark. There is a great falling off in the speculative interest in Consolidated Gold Fields, as compared with the active market which they commanded in the time of the Autumn boom. The shares are ¼ lower at 12½, the Preference remaining at 25, and the Debentures at 109½. Gold Trusts have lost ¼ at 7½ and Gold Fields Deep ¼ at 8½. The Robinson Group has stood up bravely against the prevalent weakness, Randfonteins showing special strength. Just at the close they are a shade off, closing ¼ lower at 3½. Block B are the turn better at 1½, and Langlaagte unchanged at 5½. The crushing returns for March from the two last-named mines, which were not included in the grand total published last week, were 2870 ounces and 9568 ounces respectively. Robinson Banks show a fall of about ½ at 6 xd., allowing for the 4s. dividend deducted. In the Barnato Group the conspicuous weakness has been in Buffelsdoorns, which have lost ½ at 2½. The Consols also have been weak, closing ¼ down at 2½, with the Banks ½ easier at 1½. Johnny's Investments are firm at 3½, being helped by the reduction in the weak account for the rise as evidenced at the settlement. New Primroses at 5½, Rietfonteins at 4½, and Croesus at 1½, are all a shade easier. East Rands were conspicuously strong in the earlier part of the week, but just at the last have given way so as to show a loss of ¼ at 6½. Similar declines are shown in Comets at 2½ and St. Angelo at 5, whilst Anglo-French Explorations have improved ½ to 5½. Nourse Deep is marked down ¼ at 4, whilst Rand Mines at 20, and Consolidated Deeps at 5½ are each ¼ better. A crushing of 750 ounces for the month of March from the Roodepoort Deep has not prevented a decline of ¼ in the shares to 2½. In the Ecksteins the most important fall has occurred in Modders, which leave off 1½ down at 8½. On the other hand, Ferreira has risen ¼ to 20½, Heriot ½ to 9½, Jumpers ½ to 7, and Henry Nourse ½ to 6½. The losses of ½ or so in Jubilee at 9½, Nigel at 3½, and Wemmer at 9½, are all unimportant. On the strength of the exceptionally good crushing, yielding 11,300 ounces, Crown Reefs have been in demand, and show a gain of a clear point at 11½. Knights have put on ¼ at 6, whilst Bantjes at 3½, Durban Roodepoort at 6½, Kleinfontein at 3½, Meyer and Charlton at 5½, Minerva at 1½, Robinson at 9½, Van Ryn at 5½, Van Ryn West at 3½, Village Main Reef at 6½, Volgestraus at 3½, Wolhuter at 8, and Worcester at 4½ are all within ½ of last week's prices. Transvaal Gold have recovered their dividend of 8s. at 5½. The small Lydenburg shares are generally easier. The new Luipards Vlei shares are now quoted in place of the old of half the nominal value. The quotation of 1½ represents a slight decline. Diamond shares have been dull. De Beers have lost ¼ at 28½ and Jagers ¼ at 9½.

### West Australians.

An all round advance was shown in the making-up list for Westralians on Saturday. Rates averaged from 7 to 9 per cent., being slightly lower or slightly higher in special cases according to the state of the account. Great Boulders were made up for the settlement at 8, the record price so far. They have been quoted on either side of the figure to-day, but close a shade easier at 7½, which marks a gain of ½ on the week. Another 2s. dividend and a crushing of 1823 ounces for the fortnight have contributed to the ardour of the supporters of these shares. On the other hand, the bulls of Hannan's Brownhill would seem to be losing heart, for the shares are 10s. lower at 6½, very conflicting rumours being in circulation as to the efficiency of the crushing machinery. Lady Lochs were as good as 4½ on the first day of the Account, it having been rumoured that the shares would be in short supply for the settlement. This, however, did not turn out to be the case, a contango of 4d. or 10 per cent. per annum being exacted. On this the price has given way ½ to 3½. A quiet movement which has been for some time anticipated, has carried up North Boulders 2s. 6d. to 8s., but Hannan's properties otherwise have been inclined to give way. Hannan's Reward has lost ¼ at 3½, Oroya ¼ at 1½, and Hannan's North ¼ at 1½. In the Menzies Group, Cruse have improved ½ to 1½, and are spoken of as likely to go still better. Reefs, however, have lost ¼ at 1½, and Menzies Mining and Exploration ¼ at 1½. White Feathers are ¼ down at 2½, and Hit or Miss has lost ¼ at 1½. Special strength has been shown in Golden Crowns, which close ¼ higher at 2½. Hampton Plains are firm at 4½, and it was noticed that the contango on these was lighter than usual. W.A. Goldfields are the turn harder at 7½, and Colonial Finance has put on ½ at 4½. Mainland Consols are slightly harder at 2½. The rest of the list shows few changes worth noting, and prices are to such a large extent nominal that little advantage is to be gained by entering into details.

### Miscellaneous.

The announcement of a dividend of 12s. upon Rio Tinto shares, bringing the distribution for the year up to 11 per cent., with large balances to reserve and forward to next account, has not sufficed to put the shares better. The price is without change at 18½.



## NEW ISSUES.

## THE NEW ALBURNIA GOLD MINING COMPANY (LIMITED).

This new company is formed for the purposes of acquiring, as a going concern, and for further developing and working the property of the New Alburnia Gold Mining Company of New Zealand, which is situated in the Golden Belt of the Hauraki District of the Thames Gold Field. The area of the claim is 54 acres, held on mining lease, under the usual conditions, from the Government of New Zealand. The capital of the company is £180,000, in shares of £1 each, of which 170,000 shares are offered for subscription. According to the prospectus, the lodes in the property are very numerous, the principal ones being Dixon's, Sons of Freedom, Success, and Star of the South reefs. Of these, the main reefs are the Dixon's and Sons of Freedom, which junction at an acute angle in the North Devon section of the ground. The Dixon's reef varies from 3 to 10 feet in width, an average of 5 feet of crushing ore, and extends for 2800 feet in the property. The Sons of Freedom reef varies from 4 feet to 12 feet in width, an average of 6 feet of crushing ore, and extends for 2000 feet in the property. These reefs have been partially worked down to a depth of 480 feet from the crown of the range on which the mine is situated, by means of adit levels driven into the south side of the mountain. Owing to the absence of adequate machinery, and the defective system upon which the mine was formerly worked by means of long, tortuous, narrow-gauge tram-lines, great expense was incurred in handling the ore before it reached the battery, and a great amount of selection was necessary to provide payable stone for crushing. Ore of a lower grade than £3 to the ton would not pay expenses, and, in consequence, only the rich deposits or runs of gold that were met with were worked, the greater portion of the reefs being left standing intact. In spite of these drawbacks, 101,581 ounces of gold, valued at £270,500, have been taken from the property, and sold to the Bank of New Zealand. Favourable reports on the property have been written by well-known experts, while the New Zealand Government report for 1894-95 states that "this has been one of the dividend-paying mines of the Thames, and from what is known of the present working, it is likely to continue so in the future."

## THE MENZIES GOLD DEVELOPMENT COMPANY (LIMITED).

Subscriptions are invited for 150,000 of the 250,000 £1 shares in the Menzies Gold Development Company, which has been formed to acquire and work seven mining leases in the Menzies district of Western Australia. The area comprised is about 95 acres, and is situated in the centre of some of the best known properties in the district, and, from its position, the property should be intersected by the whole of the reefs which have been proved in the neighbourhood. Messrs. Bewick, Moreing, and Co., in their report to the directors on March 17, gave the following extract from a letter they have received from Mr. Florence O'Driscoll:—"Lease 1421 has two strong reefs running north-west and south-east. The western reef was sunk on the underlay to the depth of 30 feet and gold showed in the stone all the way—Lease 1423. A shaft has been sunk 50 feet, and the drive had just been started to the west, with the hope of cutting the southern end of the Friday reef. When the men had driven 4 feet to the west out of the shaft, they came upon a reef 12 inches thick; but this is not the Friday stone, and they are continuing driving.—Lease 3051. Dry blowers have been working alluvial on the south-western end of this lease with very good results. The gold which they have found must have come from two or three outcrops in that part of the lease. There are three reefs at present showing; two of them are over 2 feet wide, the third is about a foot wide.—Lease 3050. Camp lease contains three or four distinct reefs; two of them are over 2 feet wide where the outcrops have been bared. The stone on this lease in every reef is characteristic with the best gold-bearing stone at Menzies.—Lease 3055. One of the strongest outcrops on Menzies goes from end to end of this lease about 20 yards inside its western boundary and parallel with it, reef dipping eastward. At the southern end of the lease there is a strong outcrop to the east, running with the reef already mentioned. The stone looks splendid."

## THE BASSET MINES (LIMITED).

This company was incorporated on January 9 last for the purpose of taking over and working the Wheel Basset and South Frances Mines, in Cornwall, and the directors have now 12,243 shares of £1 each to offer to the public at 25s. per share. After the issue of the 12,243 shares now offered, and the 5000 shares claimed by the liquidator of Wheel Basset in pursuance of an agreement, the issued capital of the company will be about £265,000, of which about £32,000 represents the existing assets, machinery, and development done, and about £233,000 cash for working capital. The unissued capital will be about £35,000; bringing up the whole to £100,000, the registered capital of the company. Captain James, the manager at the mines, in the course of his report, says:—"I should like to see the increase of water we are likely to get from West Frances before I could finally decide on the pumping machinery which will be required.—Daubuz's shaft. After carefully considering the matter, I would recommend we put up a new head gear on this shaft and put in cages, also a tram road from the shaft to West Basset stamps, and work two locomotives. I estimate the cost of all this to be £1100, which will include cages, wagons, wires for shaft, rails, head gear, and the making of the road. Applications for shares will be received up to Monday, the 20th instant."

## THE HESPERUS GOLD MINING COMPANY (LIMITED).

With a capital of £100,000, in £1 shares, the Hesperus Gold Mining Company (Limited) has been formed for the purpose of acquiring and developing three leases, covering about 48 acres in all, in the Kalgoorlie district of Western Australia. Mr. Brian-Hooker, late Queensland Government Mineralogist, and formerly manager of the Ivanhoe, according to the prospectus, says that being well acquainted with the peculiar nature of the lode formation of the district, he has no hesitation in passing a favourable opinion upon the mine, and he believes it will be found not only payable, but that the deeper levels will prove to be richer than the present known depth. Captain William Oats states that at the bottom of one of the three shafts sunk on the property, there is a well-defined lode 20 feet in width, and yielding 20 dwts. per ton. Assays of sample ore have yielded from 1 ounce 15 dwts. to 2 ounces 6 grains per ton. The purchase price has been fixed at £75,000, payable as to £10,000 in cash, £30,000 in fully paid shares, and the balance of £35,000 in cash or shares, or partly in either. This will leave £25,000 available for working capital, which the directors consider to be amply sufficient. The public are invited to subscribe for 70,000 shares.

## THE METAL MARKETS.

## LONDON METAL MARKET.

THE METAL MARKET, LONDON, APRIL 17.

## Copper.

CONSUMERS' demand is on a moderate scale, and stocks continue to decline, notwithstanding America's increased production, the various copper-consuming industries evidently taking ever-increasing quantities. The course of the speculative market has been as follows:—On Monday we opened dull at £44 3s. 9d., a fall of 8s. 9d. from the closing price of the previous week, and, sellers predominating, the value was further depressed to £44 2s. 6d. s.c., whilst three months changed hands at £44 15s. to £44 7s. 6d. The market was very sensitive on Tuesday, but the tendency was, on the whole, upwards, and £44 7s. 6d. s.c., £44 15s. three months were done in the course of the day. Wednesday brought a further improvement to £44 11s. 3d. and £44 16s. 3d. respectively. The volume of business on each day was considerable. On Thursday the tendency was firm, the statistics having proved better than had been anticipated, the net result being a decrease of over 400 tons for the fortnight. Values improved under the influence of these figures to £44 17s. 6d. s.c. and £45 3s. 9s., three months, and to-day, after business at up to £45 1s. 3d. s.c., we closed quiet at £44 17s. 6d. to £44 18s. 9d. s.c., and £45 2s. 6d. to £45 3s. 9d. three months.

## Tin.

There has been no special feature to note during the week under review, the fluctuations having been, in the main, due to the alternating predominance of sellers and buyers. The easier silver price at the beginning of the week no doubt aided in bringing about the fall from the opening value—viz., to £59 10s. spot Straits to £58 18s. 9d., which was accepted on Wednesday, and the gradual recovery in silver which then ensued was accompanied by rather more speculative demand for tin, inducing a rally to £59 8s. 9d. s.c., and £60 5s. three months, these prices being paid on Thursday. To-day the market was firm, and advanced to £59 17s. 6d. spot and £60 10s. three months, but it closed easier at £59 13s. 9d. to £59 15s. s.c., and £60 5s. buyers of three months. Billiton tin fell from fl. 35½ to fl. 35¼ s.c., but closes better at fl. 35½, with Banca at fl. 36¼.

## Pig Iron.

Last week's Scotch shipments were about 5500 tons—a falling off of 2800 tons compared with same period of 1895. The Glasgow market opened quiet, with business in s.c. at 46s. 4d. to 46s. 6d., and continued unevenful, with values varying between 46s. 5d. and 46s. 2½d. until to-day, when, after a fall to 46s. 1d., the market closed steady at 46s. 2d. s.c. Scotch, whilst hematite is quoted at 48s. 1½d., and Middlesbrough at 37s. 10½d.

## Lead.

Shows no signs of recovery from the flat tone which has prevailed recently; in fact, the value is even weaker, the close being dull at £10 17s. 6d. soft foreign, and £11 2s. 6d. English.

## Spelter.

Is firmer with a moderate demand, and the final values are £15 17s. 6d. to £15 13s. 9d. for ordinary, and £15 17s. 6d. to £15 18s. 9d. for specials.

## Antimony.

Is dull at £30. Remains quiet at £6 17s. 6d. firsts, and £6 16s. 6d. seconds.

## Quicksilver.

The following are to-night's (April 17) prices of metals:—

Copper.			
Tough cake and ingot	...	48 0 0	48 10 0
Best selected	...	49 0 0	49 10 0
Electrolytic Copper	...	50 0 0	51 0 0
Sheets and sheathing	...	...	56 0 0
Flat bottoms	...	...	59 0 0
Chill bars	...	...	...
Good merchantable, spot, & 3 months respectively	...	44 12 6	44 18 3
Copper tubes, seamless	...	...	...
Alloys.			
BRASS: Wire	...	...	0 0 5½
" Tubes (solid drawn)	...	...	0 0 5½
" Sheet	...	...	...
PROOF BRONZE: Alloys II.	...	...	72 0 0
" III. or	...	...	81 0 0
" VII.	...	...	83 0 0
" XI.	...	...	79 0 0
" Vulcan brand Al	...	...	72 0 0
DUNO METAL	...	...	72 0 0
BULL'S METAL	...	...	65 0 0
Ferrobronze (Vivian's).			
Ingots	...	0 0 8½	...
Ordinary sheets, plates, bolts and bars	...	0 0 8½	...
Screw bolts and nuts	...	0 0 8½	...
Pump rods, plain	...	0 0 7½	...
" finished	...	0 0 10½	...
DELTA METAL: No. 4 (per ton)	...	...	...
" Sheets and plates (per lb.)	...	...	...
" Bars, round, square, flat (per lb.)	...	...	...
" hexagon (per lb.)	...	...	...
Tin.			
English, ingots, f.o.b.	...	63 10 0	64 0 0
" bars	...	64 10 0	65 0 0
" refined	...	68 10 0	69 0 0
Straits, spot and 3 months respectively	...	65 15 0	66 0 0
Australian spot, and three months respectively	...	60 15 0	61 0 0
Banco (in Holland)	...	60 15 0	61 0 0
TIN PLATES: Charcoal, best quality	...	per box 0 13 8	0 17 0
" ordinary	...	0 10 9	0 13 0
" Ooke, best quality	...	0 9 8	0 9 9
" ordinary	...	0 8 0	0 8 0
These prices of tinplates are f.o.b. at Swansea; at Liverpool 6d. per box more.			
Iron.			
Fig. G.S.M., f.o.b., Clyde, spot	...	2 8 2	...
" Scotch pig, No. 1 Gartsherrie	...	2 10 0	...
" " Coltness	...	2 10 0	...
" " Clyde	...	2 10 0	...
" " Govan	...	2 7 2	...
Bars, Welsh, f.o.b., Wales	...	5 5 0	...
Plates	...	5 5 0	...
Bars, Staffordshire, at works	...	5 5 0	...
Sheets	...	5 5 0	...
Flates	...	6 7 8	...
Hoops	...	5 15 0	...
Ship plates, Middlesbrough	...	5 13 0	...
Strait: English spring	...	10 6 0	...
" cast	...	12 0 0	...
" Rails at works, according to section	...	...	...
Lead.			
Spanish or soft foreign	...	10 17 6	...
English pig, common	...	11 3 6	...
" L.B.	...	11 10 0	...
" sheet and bar lead	...	12 2 6	...
" pipe	...	12 12 6	...
" red	...	14 10 0	...
" white	...	17 10 0	...
" patent shot	...	15 0 0	...
Spelter.			
Silesian ordinary brands	...	15 13 6	15 13 6
" special brands	...	15 17 6	15 17 6
English Swans	...	16 7 6	16 7 6
Sheet Zinc	...	15 10 0	15 10 0
Antimony.			
Antimony	...	30 0 0	...
Quicksilver.			
Flasks, 75 lbs. warrants	...	8 15 6	6 17 6
Ore, c.i.f., U.K. ports	...	...	...
Best quality, 50 per cent. and upwards	...	0 0 11	0 1 1
2nd " 47 per cent. to 50 per cent.	...	0 0 10	0 1 0
3rd " 40 " 47 per cent.	...	0 0 9	0 0 11
Aluminium.			
98-99 per cent. (guaranteed 98 per cent. min.) in Per lb.	...	...	...
Ingots (1 cwt. lots)	...	...	...
" do	...	...	...
(1 ton lots)	...	...	...
Nickel.			
98-99 per cent. guarantee	...	0 12	0 1 6

It is a no need that the letters of allotment in the "Brownhill North (Hannan's) Limited, have been posted.

have scored ½ at 3½, and Tharsis ½ at 5½, but Copiapo at 2 and Libiola at 3 are ½ down, whilst Capes are without change at 2½, as are Anaconda at 6. The Indian group has not maintained the best prices registered when dealings were started for the new account. Mysore are ½ better at 5½, and Champion Reefs unchanged at 6½, Nundydroogs ½ up at 2½, and Orogums a shade harder at 3½. In the New Zealand group Orogums ½ are shown in Waihi at 6½, and Silverton at 4. Kapangas have been up to 12s. 9d., and we are still told to buy them. Haurakis are unchanged at 16s. 6d. Ocharters Towers shares are maintained at 2½ s.d., and a renewed demand for British has carried the price up 2s. to 19s. 6d. Alaska Mexican has fallen ½ to 1½, and Treadwell ½ to 5½. Mount Morgans have been bought, and close ½ up at 3½. Waratahs have touched 11s., and are worth attention, as accounts from the mine are most satisfactory. The Cripple Creek boom appears to be as far off as ever.

## STOCK EXCHANGE SETTLING DAYS.

## CONSOLS.

Wednesday, May 6.

## MINING MAKING-UP DAYS:

Saturday, April 25 | Saturday, May 9

## MINING NAME DAYS:

Monday, April 27 | Monday, May 11

## ACCOUNT DAYS:

Wednesday, April 29 | Wednesday, May 13

HOLIDAY: Friday, May 1

## MINING IN CORNWALL

## AND DEVON:

## NOTES ON MINING IN THE WEST.

(FROM OUR SPECIAL CORRESPONDENT.)

THERE have been two topics of conversation this week in Cornish mining circles which have quite overtopped all others, and which have produced quite a mild excitement in comparison with the extreme tranquillity of the previous months. The one subject is the possibilities of the tin market, and the other the scheme for the amalgamation and conversion of Carn Brea and Tincroft. The discussion on the future of tin is the outcome of some remarks which fell from Mr. Strauss, M.P., at Polberro meeting in London on Friday week, taken in conjunction with remarks which have fallen privately from gentlemen in the county, whose opinions on tin are generally accepted with considerable respect. Mr. Strauss is, of course, an expert on tin, and, having won the Mining Division, it may be assumed that he has no immediate necessity for winning the good graces of his constituents, and, therefore, even those who might under other conditions accuse him of "political motives" must admit that his opinion expressed at Polberro is free from suspicion in this respect. Mr. Strauss points to several circumstances as indicating a decided improvement in the near future in the statistical position of tin. There has been, for instance, a very substantial increase in the consumption during the last 12 months, and this, too, at a time when the tin-plate industry has been greatly depressed, indicating clearly that fresh uses are being found for the mineral, and new markets opened up. Although the hon. gentleman did make some reference to a probable decreased supply from the Straits, it is obvious that he anticipates that the remedy for the present unequal condition of supply and demand is to be found in an increased consumption, a very much more healthy remedy than any temporary cessation or reduction of foreign supplies. At the same time the fact of large mines in the Straits finding it impossible to make the two ends meet at the present price, ought to materially assist the situation until that expansion of consumption which a revived tin-plate trade would give has taken place. The mines which were mentioned are very large ones, that at Kota having yielded, it is said, something like 5000 tons in 12 months. Although anyone who talks about the probability of a rise in tin runs the risk of being met with the cry of "Wolf!" it does seem, from the statistics and the general appearance of things, that the cycle of low prices has about turned, and that within a comparatively short time the range will be much higher. The feeling of Cornish people is that expressed by the old proverb of the mine captain, "What has been will be," and it is certain that when that time does come, the mines which are left—and if the survival of the fittest is to apply, they are the best—will be in a position to take full advantage of it.

THE Carn Brea and Tincroft special meetings were very successful, and the resolutions committing the shareholders to the scheme were carried unanimously. Mr. C. V. Thomas who, with the Chairman (Mr. F. Harvey), is chiefly responsible for its inception and development, gave a most exhaustive and detailed explanation of the scheme, which summarised is this:—The Tincroft sett (with Cook's Kitchen) is to be amalgamated with Carn Brea into a Limited Liability Company, with a nominal capital of £200,000. There are at present 6600 shares in Tincroft and 6000 in Carn Brea, which are to rank as of equal value. For each share now held the holder will receive six new £1 shares, with 10s. credited as paid on each. A certain number of county gentlemen have offered to find some new capital, and at least £30,000 has been promised in this way. Half the capital which they find will be spent before the present shareholders are called upon to pay a penny, and for this they are to have the option of a call of one share for every two they take within the next two years. The same option will be given to any holder who desires to take up new shares. By this scheme, therefore, £37,800 will be found by the present holders, and about a similar amount by new people, making an available capital of about £75,000, which is the minimum on which the directors will go to allotment. It is an ingenious scheme, and one which the shareholders present appeared to regard with great favour. Mr. Foster Brown, the eminent mining engineer, has reported most favourably on it, and we understand there is yet a probability of a fair amount of money being put into the concern from outside the county. The history of these mines is such that there ought to be no misgiving as to the future, and with the always conspicuous example of Dolcoath, their nearest neighbour, there ought not to be much doubt as to the presence of large deposits at a deeper level.

THE proposals with regard to Polberro have been well received in the county. Captain Charles Thomas had a deservedly high reputation as a capable and conscientious manager, and it is well known that he did not look upon the mine in the light of a speculative undertaking. In the event of the confidently predicted improvement of the price of tin occurring, the shares in the new company will doubtless be eagerly sought after.



[illegible]



**AUSTRALIAN AND NEW ZEALAND MINES—(Continued).**

Name	Closing Price, Apr. 17, 1895	Closing Price, Apr. 10, 1895	Am't. of share	When last XD and Dividend	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office
W. A. General.....	3 1/4 7 3/4	3 1/4 3 1/4	1 0	—	0 14 0	—	W. Austral Coolgardie	28, St. Swithin's Ln. 28-29.
" Australian G.F. Mines Del.	1 1/2 2 1/4 pm	1 1/4 2 1/4 pm	1 0	10/ Oct. 30 '95	1 0 0	65,000	W. Austral	3, Princes Street
" Aust. Mining	9/6 10/0	9/6 10/0 1/2	5/	7 1/2 Mar. 17 '96	0 5 0	32,000	"	127, Winchester Ho.
" Aust. Pioneer	2 1/4 2 1/4 pm	1 1/4 2 1/4 pm	1 0	15/ Oct. 19 '95	0 15 0	15,993	"	139, Cannon-street.
" Share Corp.	2 1/4 2 1/4 pm	2 1/4 2 1/4 pm	1 0	—	0 5 0	330,000	"	28, St. Swithin's Ln
" Venture.	2 1/4 2 1/4 pm	2 1/4 2 1/4 pm	1 0	15/ Oct. 30 '95	1 0 0	—	"	3, Princes Street.
West Boulder .....	7/8 1	1 1/4 1 1/4	—	—	—	—	—	—
White Feather ...	2 1/4 2 1/4	2 1/4 2 1/4	1 0	—	1 0 0	60,000	Coolgardie	28 & 29, St. Swithin's Ln
Zapopan .....	1/8 1/8	4/ 5/	1 0	—	1 0 0	25,000	NW Austral	70, Bishop-gate-street
Zeelahn Montana S	—	—	1 0	-7/4 Dec. 85	66,000	66,000	Tasman a	11, Queen Victoria st
" " "	—	—	1 0	2 1/2 Dec. 95	0 2 8	12,103	"	"

Alaska Mexican...G	1 1/4 1 3/4	1 1/4 1 3/4	\$5	4-5d. Feb., '98	\$5	100,000	Ala ka.....	30, St. Swithin's-in
" Treadwell G	5 1/4 5 1/4	5 1/4 5 1/4	\$25	1/8 Dec. 24, '95	\$25	200,000	"	"
Anglo Mexican ....S	4 1/2 5 1/2	4 1/2 5 1/2	5 0	1/- Apr. 15 '96	5 0 0	74,850	"	23, College Hill.
Arizona (Prof.) G	40/6 50/-	48/ 48/3	4 0	1/6 Feb. 13, '96	4 0 0	158,920	Arizona....	74, Geo.-st., Edinbor
" 1/2 A Deben.	108 100 1/2	108 1/2	100 0	1 1/2 Oct. 30 '95	100 0 0	£135,300	"	"
" 6% B Deben.	96 1/2	96 1/2	100 0	7 1/2 Oct. 30 '95	100 0 0	£181,300	"	"
De Lamar.....GS	17/ 18/	16/6 17/8	1 0	1/- Feb. 13 '96	1 0 0	£10,000	Idaho.....	6, Drapers-gardens.
Dickens Custer GS	-7/8 1/3	-7/9 1/3	1 0	—	0 19 9	£20,000	"	Winchester Ho. E.C.
Doric.....G	8/ 8/6	7/9 8/3	5/	—	0 5 0	125,000	Colorado...	"
Elkhorn Priority S	1/4dis 1/4pm	1/4dis 1/4pm.	1 0	-3/3 June 26 '98	0 10 0	175,007	Montana	6, Draper's-gardens.
Gen. M'g. Assoc. ....G	6 1/2 7 1/2	6 1/2 7 1/2	5 10	14/- Apr. '95	5 10 0	27,469	C. Breton	Blomfield House
Golden Feather...G	3 1/2 3 1/2	11/- 12/-	1 0	—	1 0 0	180,000	California	S. Stephen. Co E.C.
" Gate.....G	3/ 4/	3/- 4/-	1 0	—	0 19 6	79,600	"	"
" Leaf.....G	1/ 1/8	1/- 1/6	1 0	—	1 0 0	300,259	Montana	8, Draper's Gardens.
Harquahala... G	3/6 4/6	3/6 4/6	1 0	-6/Nov. 14, '94	1 0 0	300,000	Arizona ..	6, Draper's Gardens.
Holcomb Valley G	1/ 1/6	1/- 1/6	5/	—	0 5 0	540,000	California	14, Cornhill. E.C.
Jackson Goldfields	1/6 1/-	1/6 1/-	5 0	—	0 5 0	408,635	"	11, Poultry, E.C.
La Plata.....S	1/ 1/3	1/ 1/3	5/	1/3 Oct. '82	0 4 0	605,000	Colorado	11, Poultry, E.C.
La Yusea .....GS	3/8 4/8	3/- 4/-	1 0	—	0 19 6	200,000	Mexico ...	20, Bucklebury, EO
Lyonnais Mexican	3/4 1	3/4 1 1/2	1 0	—	1 0 0	140,000	"	3, Broad St. Bldgs.
Montana..... GS	8/8 9/8	8/6 9/6xd	1 0	-3/ Mar 27 '96	0 19 0	657,168	Montana	Gresham House, E.O.
New Guston .....S	3/4 3/4	3/4 3/4	1 0	1/- Oct. '92	1 0 0	110,000	Colorado	25a, Old Broad-st.
Palmarejo .....GS	2/ 2/6	1/9 2/3	1 0	—	1 0 0	418,888	Mexico ...	32, Old Jewry, E.C.
Pinos Altos(D) GS	3/4 1/2	3/4 1/2	1 0	-6/ Mar. '90	1 0 0	100,000	"	110, Cannon-street.
Richmond ...GSZ	3/4 1	3/4 7/8	5 0	1/- Dec. 16 '95	5 0 0	54,000	Nevada ...	44, Coleman-street.
St. George.....G	1/ 2/	1/ 2/	5/	—	0 4 9	—	G'o'gliaUBA	S. Geo Ho, E'cheap
Sierra Buttes ...G	1/16 1/16	1/16 1/16	2 0	-8 Oct. 30 '95	2 0 0	122,500	California	128, Leaden-hall-st.
" Plumas Eur. G	1 1/16 1 1/16	1 1/16 1 1/16	2 0	-9 Oct. 30 '96	2 0 0	140,265	"	"
Springdale.....G	1/10 1/1 1/2	1/10 1/1 1/2	8/1	-2 Sep. 28, '9	8/1	1,000,000	Colorado	20, Abchurch Lane.
Twin Lake Placers	1 1 1/4	1 1 1/4	1 0	3/- Feb. '95	1 0 0	26,000	"	5, Lawrence P. H. E

Anglo-Chilian P/N	10 1/4	10 3/4	9 1/4	10	10 0	7/0 Feb. 27 '96	10 0 0	35,000	Antofagst.	123, Bishops-st. W.
" 5% RydstMB	1/8 1/8	1/8 1/8	1/8 1/8	100 0	100 0	5% Jan. 2 '96	100 0 0	\$260,000	"	"
Argen. Concessions	1/8 2/8	1/8 2/8	1/9 2/3	2/	2/	"	0 2 0	150,000	S. Luis ...	3 & 5, Queen Street.
Caratal..... G	-1/8 1/	-1/8 1/	-1/8 1/	2/8	—	—	0 2 8	1,330,000	Venezuela	57, Moorgate-st. E.O
Cayloma..... G	1 3/4 1 3/4	1 3/4 1 3/4	—	2 0	1/- Apr. 94.	—	2 0 0	125,000	Peru	52, Leadenhall street
Coloin..... G	-1/3 1/8	-1/3 1/8	-1/3 1/8	5/	—	—	0 4 0	800,000	Colombia	8, Cophthl-bldg., E.O
Colorado Nit. .... G	1 3/4 2 3/4	1 3/4 2 3/4	—	20 0	10 Dec. 16 '95	—	5 0 0	35,000	Chili	11, King-st., Liverp'
Colombia..... G	—	—	—	20 0	10 fr. Aug. 94.	—	5 0 0	—	Venezuela	Cludad Bolivar
Colombian Hy..... G	1/4 2 3/4	1/4 2 3/4	1/4 2 3/4	2 0	1/- Jy 25 '95	—	1 0 0	75,000	Colombia	10, Blomfield-street
Coplapo..... C	—	—	—	2 0	2/8 Dec. 16 '92	—	2 0 0	100,000	Chili	Dashwood House, E.O
Darien "A"..... G	5 1/2 6	5 1/2 6	—	1 0	—	—	1 0 0	49,553	Colombia	Manchester.
" "B"..... G	7 3/4 8	7 3/4 8	—	1 0	x.nw Dec 30 '95	—	1 0 0	30,000	"	"
Don Fedro..... G	1/ 2/	1/ 2/	1/ 2/	1 0	—	—	1 0 0	133,102	Brasil	24-5, Devonsh.Os E.O
El Callao..... G	5/ 3/4	5/ 3/4	5/ 3/4	5 0	9 1/2 Feb. '94	—	5 0 0	257,000	Venezuela	8, Bishopgate-st. W.
Frontao & B..... G	1 1 1 3/4	1 1 1 3/4	—	1 0	8d. Jan. 16 '94	—	1 0 0	128,662	Colombia	134, Gresham House
Glenbrook..... G	3/8 2/3	3/8 2/3	3/8 2/3	1 0	—	—	1 0 0	199,948	Arg. (A.I.)	3-5, Queen-street, E.O
Gravel..... G	1/8 2/8	1/8 2/8	2/8 3/8	1 0	—	—	1 0 0	100,000	Colombia	10, Blomfield-street
Guadalupe..... GS	3/8 5/8	3/8 5/8	3/8 5/8	1 0	—	—	1 0 0	180,000	Honduras	1A, Union ct., Old Brd
Juila Taital..... N	3/4 3/4	3/4 3/4	3/4 3/4	1 0	—	—	1 0 0	105,234	Nicaragua	139, Cannon-street.
Lagunas..... N	3 1/4 3 1/4	3 1/4 3 1/4	3 1/4 3 1/4	5 0	15 p.c. Dec. '94	—	5 0 0	120,000	Tarapaca	3, Gracechurch st.
Lautaro..... N	6 1/4 6 1/4	6 1/4 6 1/4	6 1/4 6 1/4	5 0	5/- Dec. 30 '95	—	5 0 0	110,000	Chili	70, "
Liverpool..... N	9 1/4 9 1/4	9 1/4 9 1/4	9 1/4 9 1/4	5 0	15/- Dec 16 '95	—	5 0 0	22,000	"	Liverpool.
Loma..... N	0 0/	0 0/	0 0/	1 0	—	—	1 0 0	300,000	Colombia	6, Cophthl-bldg., E.O
London Nit..... N	1 1/2 2 1/4	1 1/2 2 1/4	1 1/2 2 1/4	3 0	3 1/4 Nov. '89	—	5 0 0	10,004	Chili	9, Gracechurch-st.
" Nit. (Pref.)	3 1/2 4 1/2	3 1/2 4 1/2	3 1/2 4 1/2	5 0	8% Nov. 28 '95	—	5 0 0	22,000	"	"
Maente..... N	1/- 1/8	1/- 1/8	1/- 1/8	2/	—	—	0 2 0	200,000	Peru	11, Old Broad-st. E.O
New Tamarugal N	5 1/4 5 1/4	5 1/4 5 1/4	5 1/4 5 1/4	1 10	1s. Dec. '94	—	1 10 0	130,000	Tarapaca	50, Lime-street, E.O
" 8% Cum Pref	5 1/2 5 1/2	5 1/2 5 1/2	5 1/2 5 1/2	1 10	6 p.c. Feb. '95	—	1 10 0	130,000	"	"
" 8 p.c. Debs	5 5/8 5 5/8	5 5/8 5 5/8	5 5/8 5 5/8	100 0	10 p.c. Feb. '96	—	100 0 0	\$260,000	"	"
Orita..... G	1/9 2/3	1/9 2/3	1/9 2/3	1 0	1/- April '89	—	1 0 0	30,000	Colombia	16, Blomfield-street
Ouro Preto..... G	—	—	—	1 0	1/- Feb. '98	—	1 0 0	80,000	Brasil	8, Queen-street-place
Pae. & Jaspampa N	1 1/2 2	1 1/2 2	1 1/2 2	5 0	4/- May, '95	—	5 0 0	72,000	Tarapaca	3, Gracechurch-st.
Phoenix..... N	1/8 1/-	1/8 1/-	1/8 1/-	10/-	—	—	0 8 0	400,000	S. Luis ...	3 & 5, Queen Street.
Quebrada..... C	1/4 3/4	1/4 3/4	1/4 3/4	3 0	5% Mar. '92	—	3 0 0	241,556	Venezuela	38, Nicholas Lane.
Rosario..... N	5 5 1/2	5 5 1/2	5 5 1/2	5 0	5/- Feb. 13 '96	—				

Balaghat Mysore G	3/ 3/3	2/0 2/3	1 0	—	0 19 C	159,945	India .....	5-7, Queen-street-p
Burma Ruby.....H	1 1/2 1 1/2	1 1/2 1 1/2	1 0	—	0 13 0	209,551	Burmab.....	Suffolk House H O .
Champion Reef.....G	6 1/2 7	6 1/2 7 1/2	1 0	5/- Jan. 16 '96	1 0 0	220,000	India .....	5-7, Queen-street-p
Colar Central.....G	1 1/2 1/6	1/- 1/6	1 0	—	1 0 0	800,000	"	Dashwood Ho., H.O.
Coromandel..... G	1 1/2 1 1/2	1 1/2 1 1/2	1 0	—	0 17 8	95,000	"	5-7, Queen-st.-place
GoldFide Mysore G	2 1/3 2/3	2/0 2/6	1 0	2/- Feb '96	1 0 0	275,000	"	5-7, Queen-street pl.
Kadur Mysore.....	2/ 2/	4/ 5/	1 0	0 5 0	0 5 0	400,000	"	Cophall House, H O
Kempkote G&P	7/6 8/	3/ 5/	1 0	0 3 0	0 3 0	750,000	India .....	6-7, Queen-st.-place.
Ky. Haraballi.....G	5 1/2 6	5 1/2 5 1/2	1 0	4/8 Mar.12 '96	1 0 0	449,354	"	6-7, Queen-street pl.
" Reefs .....	9/ 1/3	-/9 1/3	1 0	—	0 18 0	100,067	"	2, East India Avenue
" West(H)G	9/ 10/	9/0 10/0	1 0	—	0 1 0	160,000	"	6-7, Queen-street-pl.
" Wynaad G	1 1/2 1 1/2	1 1/2 1 1/2	1 0	rts. Jan. 16 '96	0 19 0	127,400	"	2, St. Winchester St.
Nine Reefs .....	2/9 2/3	2/9 2/3	1 0	—	0 19 0	125,000	"	"
Sundford G	2 1/2 2 1/2	2 1/2 2 1/2	1 0	2/- Mar 12 '96	0 10 0	350,000	"	5-7, Queen-street-pl.
Oeregang Dr. G	2 1/2 2 1/2	3 3/4 3 1/4	1 0	1/8 Apr. 15 '96	1 0 0	800,000	"	"
" (10 2 Pref.)	3 3/4 4 1/2	3 3/4 4 1/2	1 0	1/8 Apr. 15 '96	1 0 0	107,011	"	"
" (10 2 Pref.)	4 1/2 4 1/2	3 3/4 3 3/4	1 0	2/8 Apr. 15 '96	0 5 0	12,389	"	"
Puang Kabang T	1 1/2 1 1/2	1 1/2 1 1/2	1 0	—	1 0 0	200,000	Malay Pn.	4a, Jeffrey's st. H.O.
Yerrakonda.....G	1/0 1/3	1/0 1/3	4/	—	1 2 8	127,401	Mysore ...	5-7, Queen-street-pl



# RAND MINES, LIMITED.

TO THE DIRECTORS.

## Rand Mines, Limited, Johannesburg.

DEAR SIR,—

In anticipation of the Third Annual Meeting of the Company, I beg leave to submit the following Report:—

## FINANCIAL.

The following Summary shows the Receipts and Expenditures of the Company from its inception up to the end of 1895:—

RECEIPTS.			
From Capital Shares issued (£1 each)...	£332,708	0	0
Profit and Loss for year 1893...	3,642	11	0
Revenue and Commissions...	1,229	18	0
Profit on Sales, Claims, and Shares...	359,203	18	2
Less: Paid Interest and Exchange...	£21,082	5	4
General Costs...	9,903	13	0
From Profit and Loss for year 1895—			
Rent, &c.	539	0	0
Interest	13,223	13	11
Profit on Sales, Claims, and Shares...	941,955	10	8
Less net Operating Expenses...	£356,018	4	7
	3,928	2	8
	£ 952,090	2	1
	1,614,785	8	11

## EXPENDITURES.

For 525% Mining Claims and 5 Water rights...	£ 78,119	0	0
1174-71 Claims represented by 2,477,647 Pound shares held in various companies as per balance-sheet...	873,639	1	10
(These Companies held 1032 claims, and have a total issued capital of £4,229,436.)			
Moolfontein Farm, containing an area of 881 Claims varying from 5000 feet to 9000 feet from the main reef outcrop...	10,885	13	8
Freehold Rights on 303 Claims Langlaagte...	13,457	13	3
Manager's House, Office Furniture, &c.	9,017	13	2
Chamber of Mines Debentures...	500	0	0
Natal Spruit Dam, 700,000,000 gallons capacity and pumping plant...	£ 81,119	7	8
Langlaagte Dam, 200,000,000 gallons capacity...	15,023	4	4
Cash Assets...	£732,391	15	1
Less Cash Debts...	179,388	0	1
	553,023	15	0
	£1,614,785	8	11

## FINANCIAL OPERATIONS IN 1895.

Profit from Sales, Claims, and Shares...	£941,955	10	8
Interest received...	13,223	13	11
Rents, &c.	539	0	0
Less Net Expenses of Johannesburg and London Management...	£356,018	4	7
Year's Profit as per Profit and Loss Statement...	3,928	2	8
	£952,090	2	1

The above Profits were disposed of as follows:—

Supplies to subsidiary Companies for working Capital and licences and expenses on claims...	£315,491	9	10
Expended upon Reservoirs, &c.	48,557	18	10
Increase in Cash Assets...	590,040	13	5
	£952,090	2	1

The claim holding of the Company has been diminished by 157 claims during the year. This reduction arises partially from sale of ground and partially from reduction in area owing to exchanges for positions nearer the outcrop, or for participation in outcrop working properties.

## PROGRESS OF DEVELOPMENT.

The following table gives an estimate of cash requirements, capacity of plant, and period when crushing will begin, of the Companies in which the Rand Mine is interested:—

	No. of Claims.	Rand Mines proportion.	Cash required beyond that already provided.	Rand Mines proportion, Cash required.	Probable Stamp.	Rand Mines proportion, Stamp.	When crushing is expected to begin.
Glen Deep, Limited	183	44.5	200,000	91,000	100	44	In 1898
Rose Deep, Limited	181	38.8	200,000	72,000	200	71	In 1897
Goldenhuis Deep, Limited	211	41.0	200,000	72,000	200	81	Now running
Jumpers Deep, Limited	218	77.9	250,000	195,000	300	158	End of 1897
Nourse Deep, Limited	249	78.8	275,000	217,000	110	79	In 1897
Crown Deep, Limited	181	77.2	450,000	339,000	200	155	Early in 1897
Langlaagte Deep, Limited	182	—	300,000	300,000	200	200	1898
Durban Roodepoort Deep, Limited	255	30.2	150,000	30,000	100	23	1898
Pearl Central	44	30.0	—	—	50	28	1898
Welbutter	195	10.3	—	—	150	28	Now running
1927	—	—	£1,935,000	£1,244,000	—	500	—

The estimates of cash requirements are in excess of those made last year, owing chiefly to a larger allowance for underground development, it being designed in each case to provide a full two years' supply of ore for the stamping power. There is also taken into consideration the increased expenditure occasioned by the labour difficulties.

The above estimate shows that the Rand Mines will require for the completion of the works for the above Companies, if their holdings remain constant, say

They have on hand cash assets of

Leaving to be supplied, say

Besides cost of general management and whatever sum will be required for the development of the Rand Exploring Syndicate claims, in all an amount of some £900,000, in the next three years. During this period the above sum will be largely diminished by results from those Companies which will make working profits.

The following Table shows the Development work accomplished:—

MONTH.	GLEN DEEP.	ROSE DEEP.	GOLDENHUIS DEEP.	JUMPERS DEEP.	NOURSE DEEP.	CROWN DEEP.	LANGLAAGTE DEEP.	DURBAN ROODEPOORT DEEP.
	Shaft 1.	Shaft 2.	Shaft 1.	Shaft 2.	Shaft 1.	Shaft 2.	Shaft 1.	Shaft 2.
1896.								
JANUARY	83	67	1085	120	50	87	140	55
FEBRUARY	82	21	1093	83	72	84	111	45
MARCH	49	128	1126	40	78	185	40	35
APRIL	18	314	1022	50	55	38	15	36
MAY	324	324	1138	61	44	28	505	31
JUNE	24	1340	81	87	30	383	27	45
JULY	170	1342	88	83	74	454	25	64
AUGUST	156	1185	84	76	68	581	21	30
SEPTEMBER	84	84	61	75	61	39	483	76
OCTOBER	80	87	368	79	77	65	39	80
NOVEMBER	102	82	368	81	68	13	748	79
DECEMBER	71	53	349	84	66	19	810	21
Total for 1896	250	274	215	82	287	15	874	597
Previously	596	826	883	761	1017	194	1030	607
Total 1st Jan. '96	350	378	911	714	287	15	1030	607
1st Jan. '97	350	378	911	714	287	15	1030	607

The Natal Spruit Dam has been completed with pumping plant and piping extending to Goldenhuis Deep. The Langlaagte Dam was nearly finished at the end of the year. The pumping machinery has still to be purchased and erected.

In October a 100 stamp mill was started upon the Goldenhuis Deep. Owing to the scant supply of Kaffir labour the plant has since been run only part time. This difficulty, which has prevented profit to being earned, is of a temporary nature and should not discourage shareholders as to the value of the property.

## GENERAL.

The Company's mining ground, with the exception of 50 claims at the Durban Roodepoort, is all on the dip of the 19 outcrop Companies, extending from the Glencairn on the east to the Langlaagte United on the west, a distance of 12 mi. es.

The following table gives the results obtained in working these Companies during the year 1895:—

Ore crushed	2,588,805 tons, 2003 lbs. each.
Yield	1,627,396 ounces gold.
Value of Yield	£5,587,384.
Average Yield	12.57 dwts. per ton.
Value of Yield	43s. 2d. per ton.
Number of Companies	19.
Amount paid in dividends	£1,707,688.
of dividends for each ton crushed, 13s. 2d.	

Deducting the amount of dividends from the gross yield, it appears that the average working costs were 31s. per ton.

In the case of one Company at least a part of the dividend was paid from the proceeds of sale of ground; on the other hand, some of the Companies which paid no dividends earned profits, and several of the dividend-paying earned more than their dividends. Probably the aggregate amount of dividends paid fairly represents the actual earnings for the year. The dividends for the year represent 22 per cent. on the issued capital of the Companies, and 6 1/2 per cent. on their market value at the end of 1895.

The outcrop Companies within the district named have now treated nearly 9 million tons of ore; these have given a gross yield of over 10 millions sterling in value, some 5 1/2 millions of which have been disbursed in dividends.

The Rand Mines, Limited, has within the district an extent of workable mining ground about as great as that owned by all the above Companies combined, the reefs in its ground varying in depth, I estimate, from 200 to 3500 feet, with the greater portion at a depth of less than 2000 feet.

In view of the persistent nature of the Main Reef basket deposits, and in view of the enormous test which has been made of their yield and of the cost of working them, the success of the Company's enterprise is assured beyond question.

During the two and a half years of my management of the Rand Mines, I have on three previous occasions made a general report, viz., for the Annual Meeting at the end of 1893; for a Special Meeting in May, 1894; and for the Annual Meeting at the end of 1894.

Owing to the nature of the undertaking, these reports have largely dealt in calculations based upon uncertain factors. As time has gone on, certain of the calculations have been checked by results, and the knowledge obtained during the progress of the work has given me more positive evidence as to the general correctness of my calculations.

Rewriting these reports to-day, their general tenor would not be less favourable to the value of your property. The share-market excitement, which has injuriously affected the efficiency of the white labour and increased our difficulties with Kaffir labour supply, by inaugurating a large number of new enterprises, has incidentally made the progress of our work slower and more costly than it would otherwise have been.

Difficulties of this nature will be gradually overcome, for the vast wealth in the property justifies and will command such persistent and faithful efforts to make it available, that nothing can stand in the way of success.

As this is my final general report, I wish to express my hearty thanks to the Board of Directors and to its officers, as well as to the managers and staffs of the Subsidiary Companies for the cordial assistance I have had from all in carrying on the work. The success met with is largely due to their efforts and support, while for the mistakes which may have been made and the failures to accomplish more, I am responsible.

I am, GENTLEMEN,

Yours faithfully,

(Signed) H. G. PERKINS, General Manager.

JOHANNESBURG, January, 1896.

## RAND MINES, LIMITED.

Balance Sheet at December 31, 1895.

LIABILITIES.		ASSETS.	
To Capital Account	£400,000 0 0	By 525% Claims and Water-rights	£ 78,119 0 0
Reserve Shares not issued	67,282 0 0	Moolfontein	10,885 13 8
	£332,708 0 0	Langlaagte Freehold	13,457 13 3
Sundry Creditors	179,388 0 1	Manager's House	9,017 13 2
Profit and Loss Account	1,597,077 8 11		
		184,050 Crown Deep	
		40,330 Welbutter (24 Shares)	
		114,488 Goldenhuis Deep Shares	
		215,500 South Rand Shares	
		127,735 Rose Deep Shares	
		59,000 Durban Roodepoort Deep Shares	
		233,800 Jumpers Deep Shares	
		295,321 Nourse Deep Shares	
		228,921 Glen Deep Shares	
		842,700 Langlaagte Deep Shares	
		199,763 Pearl Central Shares	
		Chamber of Mines Debentures	500 0 0
		Natal Spruit Reservoir	874,119 0 10
		Langlaagte Reservoir	15,023 4 4
		Petty Cash	2,888 15 7
		National Bank	32,571 13 4
		Machinery ordered and paid for	748,093 17 6
		Sundry Debtors	210 0 0
		Vehicles and Live Stock	600 0 0
		Office Furniture	—
			£1,794,153 9 0

We have examined the above Balance Sheet with the Accounts and Vouchers relative thereto, and certify the same to be correct.

(Signed) DAVID FRASER, J. G. CURREY.

JOHANNESBURG, 24th March, 1896.

(Signed) F. BOKSTEIN, Director.

R. V. MIDDLETON, Secretary.

R. CAMERON, Accountant.

## Profit and Loss Account at 31st December, 1895.

Dr.			Cr.		
To Salaries .....	£	1,781 13 4	By Balance from 1894 .....	£	329,917 0
To Directors' Fees .....		2,100 0 0	Profit on Shares and Claims sold .....		941,955 10
To General Expenses .....		1,508 11 0	Revenue and Interest .....		14,063
To Stationery and Office Expenses .....		1,216 14 11	Commission on Supplies and Machinery .....		6,368 16
To Vehicles and Live Stock .....		104 3 0			
To Office Furniture .....		73 18 0			
To Transfer Office Furniture .....		42 12 1			
To Transfer Office Expenses .....		488 19 2			
To Legal Expenses .....		351 12 10			
To London Office Expenses .....		1,649 8 1			
To Balance .....	£	9,194 18 11			
		1,597,077 8 11			
		£1,597,372 7 10			

£1,597,372 7 10
-----------------

Examined and found correct.

(Signed) DAVID FRASER, J. G. CURREY.

JOHANNESBURG, 24th March, 1896.



The List of Applications will open on Saturday, the 18th April, and close on Tuesday, the 21st April, for Town and Country, at 4 p.m.

NEW ZEALAND GOVERNMENT REPORT (Department of Mines 1894-95, page 46). "This has been one of the dividend-paying Mines of the Thames, and, from what is known of the present working, it is likely to continue so in the future."

YIELD OF GOLD.—101,581 ozs. of gold, valued at £70,000, has been taken from a portion of the property, and sold to the Bank of New Zealand.

# THE NEW ALBURNIA GOLD MINING COMPANY LIMITED,

THAMES HAURAKI GOLDFIELD, NEW ZEALAND.

Incorporated under the Companies Act, 1862 to 1890.

CAPITAL " " " " " £180,000.—In 180,000 Shares of £1 Each.

Working Capital " " " " " £30,000.—Secured by the present issue, a balance of 10,000 Shares being held in reserve.

PRESENT ISSUE, 170,000 SHARES, of which 100,000 Shares are to be allotted as fully paid to the Vendors, in part consideration for the Purchase; the remaining

70,000 SHARES ARE NOW OFFERED FOR SUBSCRIPTION at par, payable as follows:—

2s. 6d. on Application; 7s. 6d. on Allotment; and the Balance as required, in Calls not exceeding 5s. per Share, at intervals of not less than One Month.

**Directors.**—JOSEPH BRIDGEMAN (Chairman Ebbw Vale Steel, Iron and Coal Company, Limited), Chairman; CARL DE MEER (Director Lady Mauds Gold Mines, Limited); ALEXANDER R. ROBERTSON (Chairman Great Boulder Proprietary Gold Mines, Limited); MARTIN D. RUCKER (Managing Director Humber & Co., Limited); FREDERICK SMYTH (Director Manchester, Sheffield & Lincolnshire Railway Company).

**Consulting Engineers.**—BAINBRIDGE, SEYMOUR & Co., 13 St. Helen's Place, E.C.

**Local Advisory Board.**—JAMES MACFARLANE (Chairman Northern Steamship Co.; Director Hauraki South Gold Mining Co.), Auckland N.Z.; WILLIAM GORRIE (Local Chairman Woodstock Gold Mining Company), Auckland, N.Z.; JAMES HENRY SMITH (Director New Alburnia Gold Mining Company), Auckland, N.Z.

**Bankers.**—THE BANK OF NEW ZEALAND, 1 Queen Victoria Street, E.C.

**Solicitors.**—ASHBURN, MORRIS, CRISP & Co., 17 Throgmorton Avenue, E.C.

**Broker.**—BENTON WEBBER, Bartholomew House, and Stock Exchange, E.C.

**Auditors.**—MONKHOUSE, GODDARD, STONEHAM & Co., 29 & 29 St. Swinton's Lane, E.C.

**Secretary.**—JAMES S. KEITH.

**Offices.**—FINCHBURY HOUSE, E.C.

## PROSPECTUS.

THE COMPANY is formed for the purpose of acquiring, as a going concern, and for further developing and working the property of the New Alburnia Gold Mining Company for New Zealand.

**Situation.**—The property is situated in the Golden Belt of the Hauraki District of the Thames Goldfield.

**Area and Title.**—The area of the claim is 64 acres held on mining lease, under the usual conditions, from the Government of New Zealand.

**Reefs.**—The lodes in the property are very numerous, the principal ones being the "Dixons," "Sons of Freedom," "Success," and "Star of the South" Reefs. The "Dixons" main reef is the "Dixons" and "Sons of Freedom," which is an acute angle in the North Devon section of the ground. The "Dixons" Reef varies from 8 feet to 10 feet in width, an average of 6 feet of crushing ore, and extends for 2,800 feet in the property. The "Sons of Freedom" Reef varies from 4 feet to 12 feet in width, an average of 6 feet of crushing ore, and extends for 2,000 feet in the property.

The "Success" and "Star of the South" are parallel lodes, whilst between the main reefs is a lacing of smaller ones which have been called "specimen lodes" from the quality of the ore found at their junctions.

**Workings.**—These reefs have been partially worked down to a depth of 460 feet from the crown of the range on which the mine is situated, by means of adit levels driven into the south side of the mountain. Owing to the absence of levels driven into the south side of the mountain, the mine was formerly worked by means of long tortuous narrow-gauge tram-lines, great expense was incurred in handling the ore before it reached the battery, and a great amount of selection was necessary to provide payable stone for crushing. Ore of a lower grade than £3 to the ton would not pay expenses, and in consequence only the rich deposits or runs of gold that were met with were worked, the greater portion of the reefs being left standing intact.

**Yield of Gold.**—In spite of these drawbacks, 101,581 ozs. of gold, valued at £70,000, have been taken from the property, and sold to the Bank of New Zealand, a copy of whose certificate to that effect is enclosed with the prospectus, and a copy of the reports made to the New Zealand Company by the well-known Mining Engineer, Mr. E. F. Adams, and Mr. T. A. Dunlop, the Manager of the Mine. Mr. Adams states that this is considerably under the amount of gold actually obtained from the property.

**Plant.**—The property is a going concern, having a plant consisting of 20 head of stamps, seven Berdians, and two Watson & Denny amalgamating pans, with an aerial tramway, by which the quartz is conveyed to the Mill. A first-class winding engine has been erected on the main shaft now being sunk, with gear and pulley heads capable of winding to 1,000 feet or more, the whole being in good working order.

According to the estimate of the Manager of the Mine, Mr. T. H. Dunlop, whose report is herewith enclosed, the total cost of treating ore is now so reduced that ore yielding 5 dwts. to the ton will pay all expenses, and blocks abandoned now yield a profit.

**Official Report by the New Zealand Government.**—The following is the Report of Mr. H. A. Gordon, F.G.S., Inspecting Engineer to the Hon. A. J. Chamberlain, Minister of Mines, 24th July 1894:—

"NEW ALBURNIA."—This Company's mine is at a high level above the sea, and, consequently, it becomes expensive to get the quartz taken to the crushing battery. Latterly they have been making arrangements with the owners of Dixon's battery to purchase it. The Company then intend to extend the Ballarat and Dixon's adit to a point where a shaft will be sunk on Punga Flat, where levels will

be driven from, and the quartz will be put down this shaft and conveyed along the adit level to the mouth, where it will be carried by an aerial tramway to the battery, at an expense not exceeding 8d. per ton. During the last year 1,500 tons of quartz were obtained by wages-men, which yielded 8,586 ounces of gold, and 285 tons by tributors, which yielded 135 ounces 15 dwts. of gold. Out of this the Company paid the sum of £7,500 in dividends. The ore is partially of a refractory character. According to the tests made in 1892-93 by Mr. Park, of the School of Mines, only about 51 per cent. of the bullion was being saved by the ordinary battery process.

The following is an extract from the Report of the Department of Mines for 1894-5, page 46:—

"During last year twenty-two men were employed, six of whom were tributors. The latter obtained 1,411 tons of stone, which yielded 528 ounces 5 dwts. of gold, whilst sixteen wages-men obtained only 1,100 tons of stone, which yielded 657 ounces of gold. During last year, however, this Company incurred considerable expenditure in sinking a shaft and opening out a level, also extending an aerial tramway in order to get their quartz taken to the crushing-battery in Tararua Creek. This has been one of the Dividend-paying Mines of the Thames, and from what is known of the present working, it is likely to continue so in future."

"The Mine is at a high elevation, and was formerly worked from adit-levels, but these became so long that it was considered more advantageous to sink a shaft and carry on operations from it. Formerly it cost a considerable amount for the transit of the quartz from the Mine to the Saxon crushing-battery at Grahamstown; but the Company purchased the Dixon's battery at Tararua Creek, and now sends down the ore from the Mine by an aerial tramway. A shaft has been sunk on the top of the hill, from which the quartz is now hauled, and thence emptied into the hoppers to be sent down by the tramway to the battery."

"The former cost of crushing, when the quartz was taken to Grahamstown, was 8s. 6d. per ton, but the cost of crushing is now reduced to about 8s. per ton."

**Report by Mr. James Park, F.G.S.**—The following is an extract from the Report (read before the Auckland Institute, July 2, 1894), of Mr. James Park, F.G.S., Director of the Thames School of Mines, and Geological Surveyor and Mining Geologist of the New Zealand Geological Survey Department (page 15):—

"After mature consideration I have arrived at the conclusion that the future extension of the field may be effected from three different directions. First, there is the systematic development of the large low-grade reefs which exist in the Moanatalari, Waiohiki, Una Hill, and Hape areas. Among these should be specially mentioned the Sons of Freedom, Reuben Farr, Golden Age, Waiohiki, Hape Smith, and Jupiter Reefs in the Thames proper, all large, persistent, well-defined, gold-bearing lodes. I am confident that our future wealth lies in our low-grade reefs, and have no hesitation in saying that the undeveloped wealth contained in the millions of tons of ore in these reefs forms one of the most valuable and reliable assets of the Hauraki Goldfields."

According to the enclosed reports, the Sons of Freedom Reef extends for 3,000 ft. through the property of the Company.

**Extracts from other Reports.**—In his report, Mr. Dunlop says:—

"I am satisfied that with the opening up of the Mine, providing sufficient Battery power, and the extension of the aerial tramway to transport ore at a cheap rate, were the works carried out on an extensive scale, the property would prove to be highly remunerative."

In his report, Mr. Adams says:—

"This ground has for years stood well among the noted gold producers of the Thames."

"In my opinion the property is one which will repay economical and systematic

development, and as the works are carried further afield, both in extent and depth, especially when new ground is opened up below, not only will large blocks of low grade dirt be developed, but also runs of rich ore hitherto undiscovered will undoubtedly be met with."

**Proposed Developments.**—The present Company is formed for the purpose of carrying out the developments necessary for working the Mine upon a much larger scale, and in a far more efficient manner than has hitherto been attempted.

A main shaft 10 feet 6 inches by 4 feet has been sunk from the top of the range, and has now attained a depth of 300 feet. A level has been opened out 170 feet, and another level commenced at 300 feet. It is proposed to proceed with the work in these levels, and to continue sinking the shaft in order to open up fresh blocks of ground.

It is also proposed to erect thirty additional stamps at the battery, to bring in a larger supply of water for motive power, to extend the aerial tramway to the engine shaft, a distance of 1,000 feet, and to erect a new wire rope of larger size.

While the sinking of the shaft is being continued, Mr. Dunlop, Manager of the Mine, states that the battery could be kept fully employed with ore from the 170 feet and 300 feet levels.

**Water Power.**—The whole of the crushing plant is driven by water power from the Tararua stream.

The following Contracts have been entered into:—(1) dated 21st January, 1896, extended 17th February, 1896, between the New Alburnia Gold Mining Company, Limited, of New Zealand, and Thos. Spencer Rea, for the sale to the latter of the property to be acquired by the Company; and (2) dated 16th April, 1896, between the said Thos. Spencer Rea and the Company, for the re-sale of the said property to the Company at a profit. Copies of the above Contracts and the Memorandum and Articles of Association of the Company, with the original reports of Mr. Adams and Mr. Dunlop, on which the statements in this Prospectus are mainly based, may be seen at the Offices of the Solicitors of the Company.

The Vendor under the latter Contract, who is the promoter of the Company, has fixed the purchase price to be paid by the Company for the property at £140,000, payable as £20,000 in cash and as £120,000 in fully-paid shares; and as to the remaining £20,000, in cash or in fully-paid Shares, at the option of the Directors of the Company. The Vendor pays all preliminary expenses of and incidental to the formation and registration of the Company, and the subscription of its Capital to allotment. During the negotiations for the purchase of the property and the formation of the Company, agreements have been entered into with various parties in connection therewith, and as to the above expenses and the issue of the Capital, now offered, to none of which the Company is a party. Applicants for Shares must be deemed to have had notice of these agreements, and to have waived the specification of the names of the parties to these agreements, and other particulars of the said agreements, whether under the provisions of Section 35 of the Companies Act, 1867, or otherwise.

Applications for Shares should be made on the Form accompanying the prospectus, and should be forwarded to the Company's Bankers with a remittance for the amount payable on application.

If less than the whole number of Shares applied for by any applicant be allotted, the surplus paid on application will be applied towards the sum due on allotment, and the balance (if any) returned. In case no allotment is made the deposit will be returned in full.

Prospectuses and Forms of Application can be obtained at the Offices of the Company, or from the Company's Bankers, Brokers, or Solicitors, LONDON, 16th April 1896.

## RHODESIAN MINING NOTES.

By ALBERT H. HALDER, C.E.

### LEECHDALE RHODESIAN DEVELOPMENT COMPANY (LIMITED) AND ITS LOCALITIES.

THE above company's properties consist of a farm covering 6000 English acres, and is situated 65 miles north-east of the township of Bulawayo, on the main road to Fort Salisbury, in a country which is noted particularly for its healthy altitude (being 5500 feet above the sea, and, therefore, of exceptional advantage and value, as no cases of fever have ever been known as far back as the days of Lobengula). The country and its vicinity for 30 miles radius is of an undulating character, being well watered and with plenty of timber suitable for fuel and mining purposes. It is one of the best districts for cattle and sheep, and very accessible.

The property is bounded on the east by the river known as the Shangani, which has a perpetual stream of a rapid flow, which could by a scheme of engineering be utilised for motive power, not only for the properties adjoining the above company, but for many hundreds of other claims both north and south of the line of the Leechdale series. A scheme of that description, however, I should not recommend for one single individual company, but only when entertained and financed by an amalgamation scheme of many other companies in the neighbourhood, all of which are of considerable value.

The Leechdale Company originally purchased a farm, and 100 claims situated on the farm, known as the Leechdale, Davidson, and Garniss blocks, all running parallel to each other. Since my appointment as managing director, and after careful inspection, trials, and tests, I have been able to secure 100 additional claims adjoining the original Leechdale blocks, which claims I consider to be of identical value as those purchased previously, and being an asset which will add very considerably to the value of the company's holdings.

In describing the district known as the Shangani Gold Belt, which is under the jurisdiction of the Mining Commissioner of Bulawayo, I may state that amongst the many gold belts which traverse Rhodesia, it is one of the most regular and unbroken districts in the territory, consisting of chloritic slate and diabase. Its stratification is pretty regular, with here and there, however, a bend or twist, owing to the intrusion of trachyte dykes and other trappean rocks which generally accompany the bedding of the strata.

The general strike is north-west by south-east, and extends to some 25 to 30 miles in length, its width seldom varying under 5 miles. The dip of the formation is slightly west. The reefs as far as have been traced and opened up are of a crystalline character, with a dark bluish clustre with white streaks and strong veins of mineralisation of sulphides, the same being auriferous. In fact, the whole of the material is of a lively character, and very promising.

The indications down to 60 and 100 feet depth makes me believe that the veins traversing this country are true fissures. In most cases the Leechdale reefs, three in number, are from 8 feet to 2 feet 6 inches wide, carrying extremely rich visible, being, in fact, almost indistinguishable; and from assays made from rock which shows no visible gold to the eye, the results were

from 1 ounce 7 dwts. to 2 ounces 17 dwts., and 10 dwts. of silver. It can be seen at a glance that the reefs, although following its stratification in its lateral extent, are cutting the formation at an angle from 5° to 10°, having a cleavage of  $\frac{1}{2}$  inch to 1 inch of argillaceous material on each side of its walls. This leads me to understand that a strong intrusion has taken place from below or from the ends. The gold throughout the reef is uniformly disseminated, and there is no picking or selecting, although here and there specimens suitable for even jewellery may be taken out.

The development proceeding at present is on the sinking of No. 1 shaft vertical in old workings, and in which the reef has been opened up to 65 feet depth in a terrace form, and these terraces have been evidently systematically laid out by the ancient miners, owing to the want of proper hauling gear. 1800 feet north-west of No. 1 shaft a shaft (No. 4) has been sunk to a depth of 50 feet in another old working, indicating the same richness as the first-named shaft. A drive will be made to the west to intersect the same reef. Another shaft (No. 6) has been started 900 feet south-west of shaft No. 1 in an old working, in which pannings have been obtained, yielding many ounces per ton, and I have every reason to believe it will result very satisfactorily in opening up.

The reef upon Davidson's block (shaft No. 3) is down 30 feet upon old workings, in which it exposes a reef of 18 inches wide, and, judging from the dumps of the ancients, they must have been working on very rich rock, as most of the quartz exposed, or laying at grass, shows very rich visible.

500 yards south-east of shaft No. 3, No. 2 shaft has been sunk also upon an old working with similar results. The Garniss block shows a clear outcrop of a reef with numbers of old workings, but nothing has yet been done towards thorough development, owing to the scarcity of native labour. It is noteworthy to mention that although the Shangani district has masses of ancient workings, it is only an experienced eye that may possibly trace them, as they are all more or less of a shallow nature, sometimes 50, sometimes 100 yards apart, but this I presume is probably owing to the fact of sedimentary deposits from the hills, which have covered a large area of country in which outcrops of reefs are hardly traceable. Systematic prospecting in a country like this is very similar in its nature to the Rand. The country requires deep trenching and digging to the depth of real formation.

A theory has been advanced by some authorities that the larger the ancient workings are the more chance there is of success in future mining, but I may safely state that this theory is absolutely capsaed in the Shangani district, and also in other regions which I have carefully inspected. One would hardly imagine by the appearance of some of these old workings on the Leechdale properties that the ancient miners went any conceivable depth, but on actual sinking I have found in No. 1 shaft, 30 feet below the surface, a timbered shaft with tools and implements left behind by the ancients, and further, in a 40 feet level, a lateral drive along the reef carefully timbered by them. I can only come to one conclusion, and that is, that the influx of water must have stopped them from further operations, and that proper pumping gear is absolutely necessary to carry on operations to any greater depth than worked by them. As a whole, I consider the Shangani district one of the most promising in the whole of Rhodesia; firstly, for its richness; secondly, for its working facilities; and, thirdly, the reefs in the district can be classified with safety as true fissures. I look upon the Leechdale Company if systematically opened up, and also with the erection of a 10 stamp mill (which could be erected almost at once), prov-

ing not only to the company itself and its shareholders, but also to the public at large, that there are payable reefs within the limits of the territory known as Rhodesia.

THE GOLD ESTATES OF AUSTRALIA (LIMITED) have removed their offices from 42, Gresham House, Old Broad-street, E.C., to 20, Bishopsgate-street Within, E.C.

THE Agent-General for Victoria has received from his Government plans and particulars of various mining districts in the colony, which can be seen on application at his office, 15, Victoria-street, Westminster, between the hours of ten and four.

READERS of *The Mining Journal* in Edinburgh can procure it from the Newspaper and Magazine Agency, 63, Princes-street, where in future Messrs. Keith and Co., advertising and newspaper agents, 65, George-street, will conduct the newspaper department of their business. The advertising agency will be conducted as hitherto at 65, George-street.

## REPORTS FROM THE MINES.

### BRITISH MINES.

**DEVON GREAT CONSOLS.**—William Oisma, April 16:—Wheal Anna Maria, engine shaft. The slope in the bottom of the 110 fathom level east is yielding 8 tons mundaie per fathom. The slope in the back of the 110 fathom level east is producing 4 tons copper ore and 2 tons mundaie per fathom.—Wheal Anna Maria, south lode. The slope in the bottom of the 130 fathom level west will produce 8 tons mundaie per fathom. Slope No. 2 in bottom of 130 fathom level west is yielding 8 tons copper and mundaie ore per fathom.—Wheal Anna Maria, shaft. The slope in the back of the 130 fathom level east is yielding 7 tons mundaie per fathom.—Richard's shaft. In the slopes in the back of the 130 fathom level west the lode is worth 15 tons mundaie per fathom. In slope No. 2 in back of the 130 fathom level east the lode is yielding 9 tons mundaie per fathom.—Agnes shaft. The slope in bottom of the 70 fathom level west is producing 4 tons copper and mundaie ore per fathom.—Wheal Emma, Thomas shaft. The slope in bottom of 100 east is yielding 9 tons mundaie ore per fathom. Slope in bottom of 100 No. 2 is worth 10 tons mundaie ore per fathom. Slope in back of 100 east will produce 7 tons mundaie per fathom. In the slope in the back of the 100 east No. 2 the lode will also produce 7 tons mundaie per fathom. In No. 3 slope in the back of the 100 east the lode will yield 5 tons mundaie per fathom.—Inclined shaft. The slope back of 100 fathom level east the lode is yielding 3 tons mundaie and 1 2 tons copper ore per fathom.—In No. 2 slope in back of 100 east the lode will produce 3 tons mundaie and 3 tons copper ore per fathom. The slope in back of 100 west is worth 3 tons mundaie and 1 ton copper ore per fathom.—New shaft, new south lode. The slope in back of the 130 east is yielding 6 tons mundaie per fathom. In slope No. 2 in back of 130 east the lode is worth 5 tons mundaie and 1 ton copper ore per fathom.—Watson's engine shaft. In the 172 fathom level east there is an improvement, the lode being 4 feet wide, yielding 2 tons copper and mundaie ore per fathom, and is very promising. Slope in the back of the 172 east will yield 6 tons copper and mundaie ore per fathom. In slope in back of the 160 east the lode is also yielding 6 tons copper and mundaie ore per fathom. Slope in the bottom of the 118 west is yielding 9 tons copper and mundaie ore per fathom. In slope in back of 145 east the lode is worth 5 tons copper and mundaie ore per fathom.

**WEARDALE LEAD.**—Report on Weardale Company's mines for week ending April 11: Groverake, 50 fathom level east, no change, and worth 4 cwt. per fathom. Mass level vein a little more sparry with a little ore, but not to value. Slate all drift unchanged, and worth 10 cwt. per fathom. Tribute ore for the week returned at 15 4 8 bings.—Bollatun, Watt's level. Slopes in north's state worth 10, 20, 30, and 18 cwt. per fathom. Slopes in south's state worth 24, 30, 24, 30, 18, 18, and 18 cwt. per fathom. Vein slope worth 40 cwt. per fathom. The north flat below level is down about 3 feet, worth 16 cwt. per fathom.—Greenlaw, Watson's drift. Vein in forebush composed of spar strings still visible. Raising ore in 8 yards limestone above the ground is worth 12 cwt. per fathom. Slopes drift, vein  $\frac{1}{2}$  feet wide, the two parts are coming together, worth 15 cwt. per fathom. Slopes worth 10 and 20 cwt. per ton. Slaty basal drift the slope is poorer and hard, vein much divided, and worth 12 cwt. per fathom. Lowe's drift vein continues strong and sparry, but poor for ore, worth 8 cwt. per fathom. Slopes worth 8 and 14 cwt. per fathom. Driving east in near limestone we have a strong vein worth 15 cwt. per fathom. Quarry level slopes worth 10 and 15 cwt. per fathom.—Bollatun, Driving 64 level east the raising is 4 feet wide of spar rider and a little ore, worth 5 cwt. per fathom. Slopes worth 12 and 12 cwt. per fathom. Opening 66 level east the ground has not been worked above the level, but is crushed and requires timbering. Slopes above 56 level in the north part of vein worth 10, 20, 12, 12, and 10 cwt. per fathom. Ore raised for the week 54 tons, are dressed for the week 20 tons, ore and slag smelted for the week 51 tons, producing 27 tons of pig lead.



shift; it is a solid body of nice-looking stone, very angular -  
to the north. I have not had time to break into it yet, but hope to be able to  
report favourably on it next report.



KEMPINKOTE.—Superintendent's report for fortnight ending March 23: Garland's shaft. 500 north drive has been driven 47 feet, total distance from main crosscut 224 feet 6 inches. We are carrying the footwall and about 6 feet of the lode, giving an average assay of 3 dwts. of gold per ton.—500 north drive, No. 1 crosscut west, 100 north of main crosscut has been driven 15 feet 9 inches, total distance from footwall 30 feet 6 inches. About 16 feet west of footwall schist was met with; this continues. 500 south drive has been driven 28 feet 3 inches, total distance from main crosscut 199 feet 6 inches. We are carrying about 4 feet of the footwall part of the lode, assaying 14 grains of gold per ton.—500 south drive, No. 1 crosscut west. 150 south of main crosscut has been driven 13 feet 6 inches, total distance from footwall 19 feet 6 inches. We have passed through about 8 feet of lode here, giving an average assay of 6 grains of gold per ton. The ground in the end is schist. 245 north drive, crosscut east, bottom No. 2 winze, has been driven 6 feet, total 49 feet. The lode for the 6 feet driven gave an average assay of 1 dwt. 7 grains of gold per ton. At this point 49 feet east of winze the footwall was met with, and the drive was stopped and the coollies put to drive south at the bottom of the winze. 245 south drive has been driven 24 feet 6 inches, total distance from



posives.—(Signed) James Henderson.—Mining manager's report on the BRITISH COLUMBIAN SILVER-LEAD-ANTHRACITE-PHOSPHATE-FLUORITE-SPRINGS, ending March 4; Blackwood shaft. A fair supply of high grade ore was mined from eastern vein in southern part of the mine around the 300 level where the ore faces are looking well. We broke 57 tons of carbonate on the 47 per cent. lead and 7 ounces silver per ton, all from north slopes we hoisted 15 surface reserve piles.—Howell shaft. From the face of north slopes we hoisted 15 tons carbonate, averaging 41 per cent. lead and 3 ounces silver per ton, all of which we dumped on surface reserve piles. The working faces here are on the incline up to the 100 level.—Surface: Jig plant. Every branch of work connected with the erection of this plant is making capital progress. The bulk of the heaviest machinery is now fixed, and the balance of necessary is placed in position as soon as it comes to hand.—Ore ship. Shipping for the present from mine during week, as we have decided to ship shipping for the present. Assays of following (3) lots have been assayed: Lot 1, 17036 tons (net), containing 10 tons Adelaide, from previous week's assay. Lot 2, 17036 tons (net), containing 10 tons Adelaide, from previous week's assay. Lot 3, 17036 tons (net), containing 10 tons Adelaide, from previous week's assay. Silver: We assayed: Carbonate ore, Lead from 10% to 54 per cent., and silver from 1:8 to 8 ounces per ton.

**MOUNT ZEEHAN (Tasmania) SILVER-LEAD.**—Manager reports the week ended March 28.—Silver Queen section, No. 100, main shaft, 100 ft. level. Winze on south-west part of lots has been sunk 7 fathoms, latter containing about 20 per cent. of marketable ore. The winze is a nice leader of 8 to 10 inches hanging down 10 fathoms, and at bottom of winze to the other, in places to 10 fathoms wide, and at bottom of winze, the walls are fully 8 feet apart, which is a large quantity of stuff.



# BASSET MINES, LIMITED.

ISSUE OF 12,243 SHARES.

THE above Company was incorporated on the 9th January, 1896, for taking over and working The Wheal Basset and South Franches United Mines in Cornwall; and the Directors have now 12,243 shares in the Company of £1 each, to offer to the public at 25s. per share, applications for which are invited. The issue of all the shares not applied for has been guaranteed; and any shares not applied for will be allotted to the guarantors at 25s. per share. If applications for more than 12,243 shares are received, allotments will be made to the applicants strictly *pro rata*.

The shares in the Company already issued are:—

30,200 fully-paid to the shareholders of the old Wheal Basset and South Franches United Mining Companies, and their nominees, in exchange for the existing Mine Sets, machinery, and effects.

17,757, some at par, and the rest at 2s. 6d. per share premium, to the guarantors and the shareholders in the old mining companies. In addition to these, about

8000 shares will be claimed by the Liquidator of Wheal Basset, in pursuance of an Agreement, in consideration of about £2000 spent on development account for the benefit of the Company, and for about £3000 to be handed over to the Company, in cash, by the Liquidator.

Thus, after the issue of the 12,243 shares now offered, and the 3000 shares (approximately) above referred to, the issued Capital of the Company will be about £65,000, of which about £32,000 represent the existing sets, machinery, and development done, and about £33,000 cash for working capital. The unissued Capital will be about £35,000; bringing up the whole to £100,000, the registered Capital of the company. All premiums received on shares are the property of the company.

The following Agreements have been entered into:—Agreement, dated the 4th March, 1896, between The Wheal Basset Mine and Richard Rendle, its Liquidator, of the one part, and The Basset Mines (Limited) of the other part. Agreement, dated the 4th March, 1896, between The South Franches United Mines and Cornelius Bawden, its Liquidator, of the one part, and The Basset Mines (Limited) of the other part. Agreement, dated the 28th March, 1896, between The Basset Mines (Limited) of the one part, and The Wheal Basset Mine and Richard Rendle, its Liquidator, of the other part. Agreement, dated the 28th March, 1896, between The Basset Mines (Limited) of the one part, and The South Franches United Mines and Cornelius Bawden, its Liquidator, of the other part, which can be inspected at the offices of the Company's Solicitors, Messrs. Paige and Grylls, Redruth.

Contracts in connection with the working of the Mines have been entered into; and allotments will only be made on the express condition that applicants will be deemed to have waived all rights to be supplied with particulars thereof.

Applications for shares will be required to pay 5s. per share on application, and 5s. on allotment.

APPLICATIONS will be RECEIVED up to MONDAY, the 22nd inst.

Forms of Application may be obtained from the undersigned; or the form underneath can be cut out, filled up, signed, and forwarded, with cheque, to

RICHARD RENDLE,  
Secretary, The Basset Mines (Limited),  
Redruth.

Dated this 11th day of April, 1896.

To the Directors of The Basset Mines (Limited).

I,                     , £1 shares in your Company (or any smaller number) at £1 5s. each, which I agree to accept, subject to the Memorandum and Articles of Association of the Company. I enclose £          , as a deposit of 5s. per share on the shares applied for; and I agree to pay all further instalments upon the same as they shall become due. And I hereby waive all rights to further particulars of any Agreements under Section 36 of the Companies Act, 1867, or otherwise.

Dated this            day of April, 1896.

Signature.  
Address.  
Occupation.

The following is the report, dated the 4th inst., of Captain James, the manager of the mines:—Marriott's engine house is taken down. We shall be ready to build in two or three weeks' time. We cannot commence about the shaft until we are a little further on with our adits. As we have to haul the stuff from these adits through the old shaft, I am hoping in a month's time we shall find places at the adit for the stuff; then we can go on with the working down of the shaft. I should like to see the increase of water we are likely to get from West Franches before I could finally decide on the pumping machinery which will be required.

Darius's shaft. After carefully considering the matter, I would recommend we put up a new head gear on this shaft, and put in cages, also a tram road from the shaft to West Basset stamps, and work five locomotives. I estimate the cost of all this to be £1100, which will include cages, wagons, wires for shaft, rails, head gear, and the making of the road. We have a large quantity of rails on the mine that will work in, and the tram road from Pascoe's to the Old Stamp, which is of no service now, could be taken down, and the road used for the above work. To cart the stuff from Darius's to West Basset stamps it would cost 1s. 3d. per ton; to take it by horses over tramroads would cost about 5d. per ton. I think it could be taken by a locomotive for 2d. per ton, and, therefore, I should recommend we purchase a locomotive for the purpose. The cost no doubt would be about £500. Since West Franches engine has been idle the water at Darius's has increased, but not to injure us as yet. It may not be wise to rush on with this work for a week or two until we see the result of the stoppage of West Franches engine. The stuff we are breaking at Darius's is hauled to the surface. We have now about 10 tons of it there.—Wheal Basset. We have a large quantity of stuff broken here (about 1800 tons of stuff), which will produce about 30 tons of tin. This stuff is kept in the stopes to save staging.

## RAND OUTPUT FOR MARCH.

THE Union Steamship Company (Limited) have received the following cablegram:—"Johannesburg, April 10, 1896. The gold crushings at Witwatersrand for the month of March were 173,952 ounces. The output would have been better had it for the scarcity of native labour." This shows an increase of 6004 ounces, as compared with the previous month's total, and a decrease of 10,993 ounces, as compared with the corresponding month of last year. The following table gives the crushings to date:—

	1891	1892	1893	1894	1895	1896
January	52,205 15	54,560 8	108,374	149,814	177,463	118,178
February	50,779 2	56,649 8	93,252	151,270	169,295	167,018
March	52,949 1	52,344 11	110,474	165,372	184,945	173,952
April	52,271 1	55,562 6	112,053	168,745	186,222	—
May	54,572 1	59,426 6	118,911	169,773	194,581	—
June	54,889 2	102,352 8	122,207	168,182	180,541	—
July	54,824 10	110,279 1	128,189	157,952	199,452	—
August	59,070 4	102,322 3	134,069	174,977	192,573	—
September	65,101 5 1/2	107,852 13	129,585	176,707	194,794	—
October	72,793 8	112,167 8	136,609	173,378	192,632	—
November	72,793 25	106,794 15	136,640	175,304	195,418	—
December	66,512 11	170,748 17	145,357	182,101	178,428	—
Total	519,227 8 1/2	1,120,868 1	1,478,473	2,107,459	2,377,725	489,148

# PROVINCIAL SHARE MARKETS.

## THE CORNISH MINE SHARE MARKET.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (April 16):—The unexpected decline on the tin standard throughout the week has annulled all enquiry for shares, the market being comparatively idle, and prices nominal. Quotations:—Basset Mines (fully paid), 1 1/2 to 1 3/4; Carn Brea, 2 to 2 1/2; Devon Consols, 1 to 1 1/2; Dolcoath (fully paid), 16s. to 16s. 6d.; East Pool, 2 1/2 to 2 3/4; Killifreth, 6s. 6d. to 7s.; Levant, 4 1/2 to 4 3/4; Polberron, 2 to 2 1/2; Tincroft, 2 to 2 1/2; West Kitty, 2 to 2 1/2; Wheal Grenville, 6 1/2 to 6 3/4; Wheal Kitty, 4s. to 5s.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of April 16:—The Cornish Share Market continues in a dull condition, with a limited amount of business, dealings being chiefly confined to a few transactions in Dolcoath, East Pool, and Carn Brea. The Carn Brea and Tincroft meetings passed off satisfactorily, and the amalgamation scheme resolved on seems to meet with general approval. Quotations herewith:—Blue Hills, 1s. to 2s.; Basset Mines, 1 to 1 1/2; Carn Brea, 2 to 2 1/2; Dolcoath (fully paid), 14s. 6d. to 15s. 6d.; ditto (5s. paid), 3s. 6d. to 4s. 6d.; East Pool, 2 1/2 to 2 3/4; Killifreth, 6s. to 7s.; Polberron, 2 to 2 1/2; South Crofty, 2 to 2 1/2; Tincroft, 2 to 2 1/2; West Kitty, 2 1/2 to 2 3/4; Wheal Grenville, 6 1/2 to 6 3/4; Wheal Kitty, 4 to 4 1/2; Wheal Metal (3s. paid), 3s. 6d. to 4s.

## MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write, April 16 (noon):—The past week has furnished a farther distinct upward wave in prices in nearly every department of the market. In rails, home descriptions have led the way, followed in some cases fairly well up by the other sections. In Canadian alone are there to be found any contradictions in values on balance, and though some still quote lower, latest prices are above the worst of the week, whilst Canadian Pacifics are distinctly, and Trunk Ordinary and Guaranteed better on the week. Americans show an unbroken record of advances in the active stocks, though at best (after fluctuations) the rise in any case does not much exceed 1/2, whilst in most cases it is more or less fractional. Mexican rails quote better all round. A considerable amount of business has been transacted in home rails, investors having turned their attention in that direction in presence of the very high range of prices for the so-called "gilt-edged" securities. Features in this department are Scotch Stocks, particularly Caledonian, Brighton A, and London, though several others show quite as good percentage rise. To-day prices do not open much better than yesterday's close, and there is an appearance of a lull in the upward course of values, but as to this more later. Consols are 3-16 up on the week, having established another record price in the meantime. Home Corporation stocks, &c., all again higher, some distinctly so, with the single exception of Three and a-half per Cent., which is marked 1 down. Foreigners irregular, and no changes worth naming, save rise of 1/2 in Italian Renter, and fall of 1/2 in Turks, 1891. Beyond remarking that in the further sections of the market the same spirit of advance is to be recorded with but few and slight contradictions, we need to do no more than refer readers to the changes enumerated below:—

ENGLISH RAILWAYS.—Higher: Caledonian, 3 1/2; ditto Deferred, 3 1/2; Great Eastern, 4; Great Northern A, 1 1/2; Great Western, 1 1/2; Lancashire and Yorkshire, 1 1/2; London, Brighton, and South Coast Deferred, 3 1/2 to 4; London, Chatham, and Dover, 4; London and North Western, 2 1/2; Sheffield Deferred, 1; Metropolitan District, 1; Midland, 3; North British New Ordinary, 2 1/2; North Eastern Consols, 1 1/2 to 1 3/4; South Eastern Deferred, 1 1/2.

CANADIAN, AMERICAN, AND FOREIGN.—Higher: Aitchison Ordinary, 1; Aitchison Income Bonds, 1; Canadian Pacific, 2 1/2; Grand Trunk of Canada, 1-16 to 3/4; ditto Guaranteed, 1 1/2; Mexican Rail, 2 1/2; ditto First Preference, 2 1/2; ditto Second Preference, 1; Central Pacific, 3/4 to 1; Chicago, Milwaukee, and St. Paul, 1 1/2; Denver and Rio Grande, 3/4; ditto Preference, 1 1/2; Louisville and Nashville 1 1/2; Erie, 3/4; Ontario, 3/4 to 1; Philadelphia and Reading Ordinary, 3/4; Union Pacific, 3/4 to 1; New York, Pennsylvania, and Ohio First Mortgage, 3/4.—Lower: Grand Trunk First Preference, 3/4 to 3/8; ditto Second Preference, 3/4 to 3/8; ditto Third Preference, 3/4.

CONSOLS.—Higher: Two and Three-quarter per Cent., 3-16. COLONIAL STOCKS, &c.—Higher: Canada Registered, 3/4; New South Wales Inscribed, 3/4; New Zealand Inscribed, 3/4.—Lower: Victoria Inscribed, 3/4.

CORPORATION STOCKS AND DEBENTURES.—Higher: Batley Three per Cent., 2; Birmingham Three and a-half per Cent., 2; Blackburn Three and a-half per Cent., 2 1/2; Bolton Three and a-half per Cent., 1; Bury Three and a-half per Cent., 1; Dewsbury Three and a-half per Cent., 2; Liverpool Three and a-half per Cent., 2; Newcastle Three and a-half per Cent., 4; Widnes Three per Cent., 4.—Lower: Hull Three and a-half per Cent., 1.

FOREIGNERS.—Higher: Italian Renter, 3/4; Spanish Four per Cent., 1; Uruguay Three and a-half per Cent., 3/4.—Lower: Argentine Five per Cent., 3/4; Brazilian Four per Cent., 3/4; Turks, 1891, 1/4.

BANKS.—Higher: Consolidated, 3/4 to 3-16; District, 3/4; Oldham Joint Stock, 3/4; Parr's, 1 1/2 to 1 3/4; Union of Manchester, 3/4 to 1.—Lower: Bank of Liverpool, 3/4.

INSURANCE.—Higher: Boiler Insurance and Steam Power, 1/2 to 3/4; Commercial Union, 3/4; Liverpool, London, and Globe, 3/4; London and Lancashire, 3/4; Alliance Marine, 1-16; Royal, 3/4.—Lower: Equitable Fire, 6d. to 1s.; Palatine, 3/4.

COAL, IRON, &c.—Higher: Cammells, 2.—Lower: Bolckow Vaughan (£20 paid), 1; ditto (£12 paid), 3/4; Sheepbridge A, 3/4.

TELEGRAPHS AND TELEPHONES.—Higher: Anglo-American, 1; ditto Deferred, 3/4; ditto Preference, 3/4; National Telephone, 1-16 to 3/4.

BREWRIES.—Higher: Allsopp's, 3/4 to 4; Bent's, 1 1/2; Farnham, 1; Guinness, 45; Parker's, 3/4; Showell's, 3/4; Taylor's Eagle, 3/4 to 1; Thealfall, 3/4.

MISCELLANEOUS.—Higher: Blackpool Tower, 61. to 1s.; Backpool Winter Gardens, 3/4; Brunner Mond's, 2 to 1 1/2; Croes's and Winkworth, 3/4; Earle's, 3/4; Henry's, 3/4 to 1; Hetherington's, 3/4; Hudson's Bay, 3/4; Kellner Partington, 3/4; Manchester Carriage Co, 3/4; Southport Winters, 3/4; Ship Canal Ordinary, 1-16.—Lower: Howard and Bullough, 1-16 to 7-16; United Alkali, 3/4 to 5-16; Northern Assets, 61.

LATER (4 P.M.).—In home rails Scotch Stocks and Great Eastern went a bit away from best on profit taking, but the rest keep firm, or have gone better. Nothing much doing in either Canadians or Americans but figures hold up well.

## SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (April 16), writes:—During the past week business has been restricted by the fortnightly settlement, but the rates of continuation to new account, April 29, have been light. Favourable Board of Trade Returns have been issued, and should help to make share markets brisker.

In shares of coal, iron, and steel companies prices are irregular, Bolckow Vaughan are lower at 13 7-16. Marbella better at 43s., Niddrie 40s., Steel Company of Scotland 98s. 6d., and Stewart and Clydeade 11.

In shares of copper concerns a moderate amount of business has been done. Prices show little alteration, except Tinto, which have improved from 18 1/2 to 18 3/4 on the announcement of dividend of 12s. per share. This compares with 4s. per share at this time last year, but a little more had been expected. Thais has improved to 110s., Arizona to 50s. 3d., and Mason to 65s.

In shares of gold and silver mines there has been a fair amount of business done. Chartered declined to 74s. 6d. owing to state

ments that the company will have to bear the cost of suppressing the Matabel rising, but a recovery has since set in, to some extent due to "bear" closing. Henry Nourse, Sheba, and some of the mines which gave increasing returns last month have advanced in price. A fair amount of business is being done in West Australians. Shares in a new mine, Hall (British Columbia), are attracting attention at 33s. 9d., as it is said the mine is making large profits. Consolidated have been selling from 12 3-16 to 12 1/2, East Rand from 6 1/2 to 7 1-16, and Randfontein from 61s. 6d. to 65s. Aurora West United are at 27s. 6d.; Associated W.A., 41s. 3d.; African Recovery, 33s.; Australian Broken Hill, 1s.; Afrikander, 27s. 6d.; Broken Hill, 48s.; Big Blow, 15s.; Bonanza, 55s.; Barnato Bank, 33s. 9d.; Bendigo New Chance, 10s. 6d.; Bonnie Dundee, 6s. 6d.; Charterland, 15s.; Crosses South, 23s.; Consolidated W.A., 11s.; Eastleigh, 22s.; Emma, 2s. 3d.; Gold Fields of Mozambique, 21s. 3d.; Golden Crown, 41s. 3d.; Hit or Miss, 30s.; Holcomb Valley, 1s. 61.; Hainault, 33s.; Hannan's Golden Treasure, 23s. 6d.; Hannan's Golden Group, 22s. 6d.; Kempinkote, 9d.; Kathleen, 4s.; Kapanga, 11s. 9d.; Leipard's Vlei, 38s. 9d.; Londonderry Extended 2s. 9d.; Mullins, 3s.; Murchison Gold Fields, 6s. 3d.; New Queen, 6s. 9d.; Nandydoo, 58s. 9d.; New Guadalcanal, 2s. 9d.; Ouro Preto, 20s.; Orion, 47s.; Orient, 9s. 61.; Paddington Consols, 26s. 3d.; Rhodesian Exploration, 7; Rhodesia (Limited), 23s. 6d.; St. Augustine, 9s. 6d.; Spes Bona, 28s. 6d.; United Rhodesia, 18s. 3d.; Victory, 1s. 6d.; Wentworth, 20s.; Wealth of Nations Extended, 22s. 6d.; Wolhuter, 8s.; and Zambesia Exploring, 55s.

In shares of miscellaneous companies prices are generally better, Broxburn Oil are at 10 1/2; Pumpherson, 7 1-16; and Young's Oil, 33s. Cheshire Alkali Preferred are at 27s. 6d., and Nobel Dynamite Trust 16 1-16.

## EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of April 16:—Since last weekly report, home railways have been very strong. There has been a large over-turn in Caledonian Deferred and North British. Caledonian Undivided has advanced from 153 to 157 1/2, ditto Deferred Converted from 57 1/2 to 60 1/2, ditto Preferred from 96 1/2 to 97 5-16. The Deferred No. 1 stock has had the most remarkable rise of all, having gone from 6 1-16 to 8 1/2. North British has changed from 45 1/2 to 46 15-16, Glasgow and South Western from 122 to 124 1/2, Highland from 103 to 105. Brighton Deferred has risen 4, South Eastern Deferred 2 1/2. Insurance shares have been firm. Caledonian have risen from 28 1/2 to 30. British Linen Bank has advanced from 406 to 407, Commercial from 75 1/2 to 75 3/4. National from 356 to 357. Royal has declined from 230 1/2 to 229 1/2. Coal shares have been dull. Houston have declined from 24 to 23 1/2, Niddrie and Benhar from 40s. 9d. to 40s., Rosewells from 5 1/2 to 5 1/4, but Wilson's and Clyde show an improvement of 2s. 6d. Arizona Copper, Rio Tinto, and Thais are a'1 higher. Mysore Gold have risen from 115s. to 120s., Nandydoo from 55s. 3d. to 59s.

THE SOUTH NIGEL GOLD MINING COMPANY (LIMITED).—The secretary sends us the following extract from a speech by Mr. A. R. Sawyer, vice-president of the Geological Society of South Africa, at the annual meeting held in the Council Room of the Chamber of Mines, on March 9, under the presidency of Dr. Exton, who was supported by Mr. J. A. Chalmers, and many other representative mining authorities of the Transvaal:—"Mr. Fred Jepp's excellent map, recently published, gives the registered numbers of the farms, and should be of great assistance to us. Jepp's map shows the course of the Nigel reef quite correctly. It bends round at the Nigel, and assumes a southerly direction. It can be traced through Maraisdrift (No. 4), and through the Noyce Dale Mynpacht, on through the O'Fisherty claims, and through the adjoining claims belonging to the South Nigel Gold Mining Company. These claims are situated on the western portion of the farm Rietpoort. Not only does the Nigel reef take a sharp turn southward on entering Maraisdrift (No. 4), but the whole formation turns round, as it should, in the same manner. This is particularly well seen at the pan near the northern beacon of Maraisdrift (No. 4). I may state that Mr. C. S. Goldmann also shows the Nigel reef as passing through the western portion of Rietpoort on plan 97, volume 3, of his book."

## BRITISH GUIANA'S GOLD INDUSTRY.

The following is the amount of gold entered on Thursday, the 19th ult., at the Custom House, Georgetown, for shipment by the R.M.S. Solent, which sailed on the same day and the names of the shippers:—

	Ozs.	dwt.	grs.
Colonial Bank	1782	19	10
British Guiana Bank	3791	19	8
Total	5573	18	11

Total Value \$95,919.27

The following are the returns of gold entered at the Department of Mines for the weeks ending:—

	March 14, Ozs. dwt. grs.	March 21, Ozs. dwt. grs.
Barima	87 1 18	160 5 16
Barima	756 4 0	288 14 2
Cuyuni	728 13 9	396 5 5
Demerara River	—	2 10 17
Esequebo	158 18 0	746 1 23
Groete Creek	27 17 7	10 17 23
Mamirani	0 6 0	—
Potaro	1185 2 17	257 1 2
Paruni	66 14 16	40 7 15
Total	2960 17 19	1902 2 7

Export of gold from January 1 to March 30:—

	Ozs.	dwt.	grs.
1896	19,236	15	11 at \$341,956.74
1895	21,003	7	6 at \$371,714.67

## WANTED.

\* Prepaid Advertisements are inserted in this column at the rate of 8d. per line, with a minimum charge of 4s.

## ARSENICAL ORES AND MATERIAL.

SELLERS ARE INVITED TO COMMUNICATE with W. BEVAN & CO., Arsenic Manufacturers, Swansea.

## BALLYMENA, CO. ANTRIM, IRELAND.

CAPTAIN WILLIAMS, upwards of 20 years General Manager of the Antrim Iron Ore Company's extensive mines and works (now retired), is in a position to recommend some VALUABLE IRON ORE ROYALTIES, conveniently situated to railways and shipping ports. This offer should be of vast advantage to iron and steel manufacturers using Irish ore.

MINE MANAGER WANTED, for Gold Mine in Gold Coast Colony. Must be thoroughly capable and experienced in all branches of Gold Mining, and possessed of good business ability and of thoroughly sober habits. Age about 35. Passage will be paid, and board and lodging provided. Apply by letter only stating age, experience, and salary required, to "Y. Z." 31, Farnival Street, London, E.C.

## MICA MINER.

WANTED, fully QUALIFIED and EXPERIENCED MICA MINER to OPEN up a new Mine. State full particulars to "MICA," Mining Journal Office 18, Finch Lane, London, E.C.



## VICTORIAN GOLD MINING.

By THOMAS CORNISH, M.A.I.M.E., Author of "Our Gold Supply," &c.

WHILE other parts of the world have been so much in evidence of late in gold mining, or what is termed in the fashionable language, and attracting the attention of the excitable section of speculators and investors, who all expect to make a fortune by dabbling in high-priced and much over-valued stock in mining companies, that, according to prospectuses, were all going to give ounces to the ton, Victoria, in its modest way, keeps steadily at work on her well-proved gold fields, and heading the list of Australian gold-producing colonies. £240,000,000 sterling has been the record of the output of gold from the Victorian gold mines, or about twice the amount of gold as yet produced by all the other colonies put together—say New South Wales, Queensland, South Australia, West Australia, New Zealand, and Tasmania. This record will take a lot of beating.

Victoria is still proving itself the most prolific gold-producing colony of the Empire, and where the gold mining industry has been the most profitable, as I estimate that fully one-third the gold produced has been profit, or (say) £80,000,000 sterling payable in dividends. There are a number of ill-informed people who profess to believe and assert that Victorian gold mining is not as profitable as the new discoveries in other places, but let them compare the profits with the capital invested. Victoria has special advantages over most of the other gold-producing countries—an agreeable climate all the year round, wood, water, available labour of experienced miners always obtainable at moderate rates, all kinds of machinery manufactured on the spot, skilled management and technical knowledge for treatment of ores from the local schools of mines also available, so that gold mining can be, and is, carried on with greater economy and profit in Victoria than any other part of the world.

Although one of the pioneers of Victorian gold mining, I have also had the opportunity of visiting and prospecting various gold fields in other parts of the world, and made it a speciality to acquire information of many other portions of the globe that I have not yet visited, and I can but think that, taking all things into consideration, Victoria holds the palm.

At the present time new discoveries are being made in Victoria in beautiful and healthy parts of the colony, which, if made in Central Australia, or the tropical portions of North Australia, or in Central Africa, would cause intense excitement, and a rush of men and capital would at once follow.

A report of some new discovery appears in the *Argus*, February 26. "On the head waters of the Owens River, and on its western branch, is the location of the Crescent Camp, 5 miles south of Mount St. Bernard, and 8 miles from Harrierville. To-day the Crescent Camp is a busy scene of mining activity. Here the solitudes of the primordial mountain forest have been rudely disturbed by the gold-seekers who have made their camp in this fern-clad gully. The history of the discovery of these reefs, which are of such promise, is only one instance that might be cited to illustrate the fact that prizes and reward claims still await the advent of the prospector who pluckily ventures out beyond the known auriferous belts, and seeks for gold in the ranges and spurs from the great dividing range, more generally known as the Australian Alps."

Early in 1894, Messrs. Richardson, Neil, and McFadyen prospected the country, which resulted in the discovery of the Crescent reef, from which a trial crushing of 65 tons gave 48 ounces 15 dwts., or (say) 15 dwts. to the ton. The company now owning the mine are erecting a 10-stamp mill, which is likely to pay well; they have also acquired additional land, making a claim of 120 acres. The workings of the mine are under the superintendence of Mr. T. G. Davey, manager of the Harrierville Mine, who has completed the surface works preparatory for permanent crushing. Important discoveries have been recently made showing the lode formation to be of great width and value. On the hanging wall side of the lode a drive has been taken south for 180 feet, and there the same well-defined wall and soft dig is exposed, similar to that in the surface out above. The largest seam yet met with in this large reef formation is 9 feet wide; a trial of 31 tons averaged 2½ ounces per ton. The gold is worth £4 2s. an ounce. The Victory Mine adjoins the Crescent on the west. On this a good lode has been opened. The first crushing of 16 tons gave a return of 28 ounces of gold. Another lode gave a prospect from 19 tons of 18 ounces, while from a tunnel in the range 130 feet below the outcrop of the main lode on the floor above, that lode has been intersected, averaging 4 feet of payable stone; 44½ tons taken out in driving on the lode returned 166 ounces 17 dwts., and another parcel of 12 tons from a winze 67 ounces, thus, making a total of 56½ tons crushed from 233 ounces 17 dwts. of gold, averaging 4 ounces 2 dwts. per ton. With such yields as these and a lode of such a permanent appearance, it is no wonder that the old-time miners in the Owens' district consider the Victory the best "show" opened up in this locality for many a year. The Big Gun Camp is the name given to the second new mining centre formed at the head of the Owens River, and distant only about three miles from the Crescent. The prospector of this new field is Mr. R. E. Howard, well known throughout Gippsland as a successful gold seeker.

The Big Gun reef was discovered on the northern slope of a precipitous range, the outcrop standing up several feet above the surface, thus clearly showing that this range had never been previously prospected. A surface out below the outcrop shows the lode 5 feet between the walls. The reef shows good golden stone, but as yet little work is done on it.

The Big Gun Extended adjoins the northern boundary of the Big Gun. A lease of 24 acres applied for. The crown of the hill is 1000 feet above the Creek bed. This rise gives full advantage for tunnelling on the line of lode. Prospecting operations on this line out the reef in two places. The lowest out measures 5 feet across the reef, but no walls yet exposed. On the western side of this some very good golden stone is to be seen.

To the west of the Big Gun line of reef four prospecting shows have been opened up, all of which are of a promising appearance—viz., the Cannon, the Little Gun, the Lily, and the Rose of the Mountain. The latter is situated west of the Big Gun Extended, and a 25-acre lease applied for. A shaft is being sunk, showing good prospects, as also are the shows on the other lodes.

From the prospects of these new discoveries, and the solid results already obtained from the first crushing, this new rush is likely to turn out a very important and valuable gold field.

The Harrierville Company has for several years past been doing a large amount of good development work which is likely soon to turn to profitable account. Prior to its purchase by an English proprietary about 25,000 ounces of gold had been won from the several mines, while the present company have got about 19,000 ounces. Recently an important development has taken place which has returned very payable results. Within a week from the discovery the first parcel of 28½ tons was crushed, and returned 60 ounces 9 dwts. of gold. The shaft has since been sunk on the lode, and altogether 157 tons have been treated for a return of 380 ounces 19 dwts., or an average of 2 ounces 7 dwts. per ton.

The company has an excellent crushing plant and complete appliances for saving gold, and with the improved prospects by the late discoveries Mr. Davey hopes to bring the company to a successful issue.

It is not only in this portion of Gippsland that important discoveries have been made, but other parts of the colony as well in and around Ballarat, Bendigo, St. Arnaud, Sawell, Maryborough, and other well known fields are continually opening up new reefs and alluvial deposits of great value.

With energy and attention to legitimate mining under skilled supervision the Victorian gold fields can soon be made to materially increase their output of gold, and pay largely increased dividends to shareholders.

## PUBLICATIONS.

\* Prepaid Advertisements are inserted in this column at the rate of 8d. per line, with a minimum charge of 4s.

## WORKS ON MINING, METALLURGY, and ALLIED SUBJECTS.

A Hand-Book of Gold Milling. By HENRY LOUIS. A.R.S.M., F.G.S., &c. Crown 8vo., 10s. net.

The Golden Quartz Reefs of Australia. By WILLIAM NICHOLAS, F.G.S., with Illustrations. A series of Articles especially relating to the Bendigo Gold Field, Victoria. 2s., Post Free.

A New Guide to the Iron Trade, or Mill Managers' and Stock Takers' Assistant. By JAMES ROSE, of Bateman's Hill Iron Works. Second Edition. Comprising a Series of New and Comprehensive Tables, practically arranged to show at one view the Weight of Iron required to produce Boiler Plates, Sheet Iron, and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimensions, to which is added a variety of Tables for the convenience of Merchants, including a Russian Table. 2s. 6d.

The Colliery Ready-Reckoner and Wages Calculator. By JAMES IRELAND. 1s. 6d., Post Free.

Tacknote: a Form of Licence to Explore and Search for Mines. Minerals, &c. 1s., Post Free.

Notes on the Philippine Islands: A Pamphlet Reprint. By FRANK KARUTH, F.R.G.S. 6d.

History of the Holmbush, Redmoor, and Kelly Bray Mines: with Several Sections of the Workings. By W. F. WILKINSON, 1s.

The Law of Merchandise Marks. By FRANK SAFFORD. Recorder of Canterbury, and a Member of the London Chamber of Commerce, 7s. 6d.

LONDON:

THE MINING JOURNAL,  
18, FINCH LANE, E.C., and

3, DORSET BUILDINGS, SALISBURY SQUARE, E.C.

## THE LIXIVIATION OF SILVER ORES

WITH  
HYPOSULPHITE SOLUTIONS.

By O. A. STETEFELDT.

SECOND EDITION. COMPLETELY REVISED.

With Two Plates showing Construction of a LIXIVIATION PLANT. Published and Sold in the United States and Mexico by the Author. 567, ALICE STREET, OAKLAND, CALIFORNIA.

Price, bound in Cloth, \$5.

For all other countries the Sale is conducted by  
CRAZ and GERLACH (Joh. Stettner), Freiberg  
in Sachsen, Germany.  
Price 20s. net.

## THE GLASGOW HERALD

(ESTABLISHED 1782)

IS THE

LARGEST & LEADING ADVERTISING MEDIUM  
OUT OF LONDON.

It is next to *The Times* and *The Daily Telegraph*, each of which it exceeds in extent of Advertising during several months of the year. It is unrivalled among Daily Papers for the completeness of its Reports of the Mining and Metal Markets, besides Commercial and General News for all classes of the community.

HEAD OFFICES: 65-69, BUCHANAN STREET, GLASGOW.

LONDON OFFICES: 65, FLEET STREET.

The COUNTY GENTLEMAN'S PAPER for Cheshire,  
Shropshire, and North Wales is

## THE CHESTER COURANT.

(ESTABLISHED 1730.)

The CHESTER COURANT goes into all the best houses and has a Subscription List of remarkable scope and character. It is a most suitable medium for advertising Patent Machinery used on large Farms or County Estates.

## FOR SALE.

\* Prepaid Advertisements are inserted in this column at the rate of 8d. per line with a minimum charge of 4s.

FOR SALE, TWIN RELIANCE AIR COMPRESSOR, by Hathorn and Co., London; Steel Receiver for same; all in first-class condition; 2 large BOILERS, recently overhauled. Full particulars and prices on application.

Apply, TAYLOR AND ENGINEERING WORKS (Limited), Tavistock.

N.B.—Estimates furnished for all kinds of Mining Machinery, both New and Second-hand.

FOR SALE.—Two New AIR COMPRESSORS, 16 inches diameter by 28 inches stroke. To be driven from existing motive power.

Also Two of 30 inch CRUSHING MILLS, and various second-hand LEAD MINING MACHINERY and WATER WHEELS.

Makers of all descriptions of Lead and Blende Ore Dressing Machinery, and Water Wheels and Gearing.

Machinery supplied to all parts of the World.

Estimates furnished on application to E. THOMAS, Railway Engineering Works, Llandidloes, North Wales.

## HEMATITE IRON ORE.

PROVED DEPOSITS of rich HEMATITE IRON, near the sea coast, in an EXCEPTIONALLY GOOD POSITION for WORKING CHEAPLY.

For particulars, address "FERRUM," MINING JOURNAL Office, 18, Finch Lane, London, E.C.

## FOR SALE.—END OF MAY.

ONE PAIR 25 inch Horizontal Winding Engines.

One pair 12 inch " " " " " "

One pair 10 inch Portable Engines with Winding Drum.

One 26 inch Vertical Engine with Winding and Capstan Drum.

One 16 inch Horizontal Winding Engine.

One 20 inch Engine.

One 12 inch " " " " " "

One 10 inch " " " " " "

One 10 inch Portable Engine.

Two 6 inch Feed Engines.

Two Cornish Rollers, 30 feet by 6 feet (50 lbs.)

One " " " " 32 feet by 6 feet (50 lbs.)

One Denaby Pump (New), 42 inch cylinder, 4 feet stroke.

Electric Light installation complete.

Winding Pulleys, Pit Framings, Trams, Rails (underground and surface).

One Fowler's Patent Oil Pulley.

One Lyle's Shaker Screen, with Engine complete.

Sheet Iron, Air Pipes, 12 inches, 15 inches, and 24 inches in diameter.

One Greenwell's Patent Screen, with Engine complete.

Crabs, Pumps, &c., &c., &c.

Further particulars of

NEVILL, DROVE, and CO.,

Box Collieries, Llanelli.

## BUSINESS CARDS.

AERIAL ROPEWAYS.  
OTTO SYSTEM.

R. E. COMMANS (late Commans and Co.), 6, Queen Street Place, London, E.C.

## ASBESTOS.

THE UNITED ASBESTOS COMPANY (Limited), Dock House, Billiter Street, London, E.C. Asbestos Goods of the highest quality.

## EXPLOSIVES FOR MINING.

NOBEL'S EXPLOSIVES COMPANY (Limited), Glasgow. Manufacturers of Gelignite, Gelatine-Dynamite, Dynamite, Detonators, Electric Detonator Fuses, &c., &c.

## MAGNETIC ORE SEPARATORS

(KING'S PATENT.)

FOR SEPARATING IRON ORE FROM OTHER MINERALS. Apply, FREDK. J. KING, 96, Leadenhall Street, London.

## METAL PERFORATORS, &amp;c.

J. &amp; F. POOL,

METAL PERFORATORS & WIRE WEAVERS.  
COPPERHOUSE, HAYLE, CORNWALL.

SPECIALITIES:—All descriptions of Perforated Metal Plates, Stamps, Battery-Screens, Wire Gauze and Sieves for Foreign and Home Mining, and other Purposes. Export orders carefully and promptly executed.

## MINING ENGINEER.

F. M. KRAUSE, F.G.S., F.L.S., (formerly of the Geological Survey of Victoria, late Professor of Geology and Mining at the School of Mines, Ballarat), Examines and Reports upon Mines and Mineral Lands. May be consulted by Shareholders and intending Investors in Australian Mining Properties. 18, Temple Court, Collins' Street, Melbourne, Victoria, Australia.

## MINING INSTRUMENTS.

JOHN DAVIS & SON, All Saint's Works, Derby; and 118, Newgate Street, London. Mathematical instruments and miner's safety lamps.

## MINING MACHINERY.

FRASER & CHALMERS (Limited), 43, Threadneedle Street, London, E.C. Mining machinery of the most approved design.

THOMAS LARMUTH and CO., Salford, Manchester, Manufacturers of Patent "Hirnant" Plant, Rock Drills, Air Compressors, Sinking Carriages, &c.

Agents for South Africa—Messrs. REUNERT and LENZ, Johannesburg.

ROBEY & CO. (LIMITED), Manufacturers of Steam Engines, Mining Machinery, &c. Makers of the Robey Patent Automatic Expansion Gear.—Globe Works, Lincoln.

GATES IRON WORKS, 73A, Queen Victoria Street, E.C. The Gates Rock and Ore Breaker effects a great saving in power.

## ORE DRESSING MACHINERY.

THE LÜHRIG COAL AND ORE DRESSING APPLIANCES

(LIMITED),

32, VICTORIA STREET, LONDON, S.W.

COMPLETE DRESSING PLANTS for Gold, Silver, Lead, and Copper Ores, &c., designed and erected.

LÜHRIG SINGLE AND COMPOUND VANNERS for Low Grade Ores and Tailings.

IMPROVED BREAKERS, ROLLS, JIGS, AND SEPARATING DRUMS.

Tests made with Samples at London Works Free of Charge.

## ORE REDUCTION.

THE CLARKSON-STANFIELD ORE REDUCTION COMPANY (Limited). Process for the treatment of gold, silver, copper, lead, and other ores. Address, 6, Colonial Avenue, Minories, London, E.

## ROCK DRILLS.

RICHARD SCHRAM & CO., 17a, Great George Street, Westminster, S.W.

## SAFETY FUSE MANUFACTURERS.

THE UNITY SAFETY FUSE CO., Scorrier, Cornwall, Manufacturers of all kinds of Safety Fuse for use in Mining, Quarrying, Submarine, and other Blasting Operations.

## STONEBREAKING MACHINERY.

W. H. BAXTER, Engineer, Leeds. Stone-breaking and Ore-crushing Machinery. All highest awards received for 12 years. Guaranteed for economy in power, efficiency and durability over all others. Catalogues free.

## TUBE MAKER.

GEO. J. CHATTERTON, manufacturer of lead pipe, black tin pipe, and tinned composition gas tube, Caledonian Road, London, N.

## TURBINES

G. GILKES and CO., Kendal Makers of The Vortex Turbine.

## THE WEST BRITON AND CORNWALL ADVERTISER.

The best Family Newspaper for Cornwall and the West of England generally.

MONDAY AFTERNOON, 4 Pages, One Halfpenny.

THURSDAY AFTERNOON, 8 Pages, 56 Columns, One Penny.

The Largest and Most Influential Journal of Cornwall.

The Best Advertising Medium in the West of England.

The Largest Circulation of any Cornish Newspaper.

The "WEST BRITON" contains more reliable information respecting Cornish Mines than any other Newspaper.

HEARD and SONS, Publishers, Truro.



# THE UNITED ASBESTOS CO. (Limited),

DOCK HOUSE, BILLITER STREET, LONDON, E.C.

PIONEERS of the ASBESTOS Trade. The ONLY COMPANY in the WORLD owning and working Asbestos Mines both in ITALY and CANADA. All goods are made at our Works, near London, and are of the best possible description.

SPECIFY "SALAMANDER" BRAND.  
Depots: NEWCASTLE-ON-TYNE, Quay Side; MANCHESTER, 34, Deansgate; LIVERPOOL, 33, James Street; GLASGOW, 93, Bothwell Street; CARDIFF, 135, Bute Street; BRISTOL, Provident Buildings, Clare Street; ST. PETERSBURG, Gostinoo Dvor (interior), No. 51; ANTWERP, Rue Montevideo.

THE UNITED ASBESTOS PATENT "SALAMANDER" DECORATIONS.  
PRICES ON APPLICATION.

From His Grace the Duke of Rutland.  
Belvoir, Grantham,  
December 1st, 1879.

SIR,—Elliman's Royal Embrocation is used in my stables; I think it very useful.

RUTLAND.  
Master of the Belvoir Hounds.

From the Earl of Harrington.  
January 9th, 1889.

SIR,—Elliman's Royal Embrocation is used in my stables, and I consider it the best that I can obtain.

HARRINGTON.  
Master of the South Wilts Hounds.

From Major M. J. Balfe,  
South Park.  
June 16th, 1892.

SIR,—Elliman's Royal Embrocation is used in my stables, and I can highly recommend it.

M. J. BALFE.  
Master of the Roscommon County Stag-hounds.

**ELLIMAN'S ROYAL EMBROCATION**  
"AN EXCELLENT GOOD THING."  
BOTTLES 2/2 2/6 3/6  
JARS 10/6 20/0  
Prepared only by ELLIMAN, SONS & CO. SLOUGH, ENGLAND.  
ECONOMY IN THE STABLE.  
USING ELLIMAN'S EASIER HAULAGE

From Lord Baddington, Tynningham, Prestonkirk, N.B.  
December 27th, 1885.

SIR,—Elliman's Royal Embrocation is used in my stable, and I consider it indispensable in any stable, but especially in the stable of a Master of Hounds.

HADDINGTON.  
Master of the Berwickshire Hounds.

From R. Burdon Sanderson, Esq., Warren House, Belford  
July 10th, 1892.

SIR,—Elliman's Royal Embrocation is used in my stables and I consider it very useful.

R. BURDON SANDERSON.  
Master of Percy Foxhounds.

From Wm. J. Buckley, Esq., Pen-y-fai, Llanelli.  
July 16th, 1892.

DEAR SIR,—I have much pleasure in recommending your Royal Embrocation. I always keep a stock in my stables and kennels. My farm bailiff has also found it of much value among my herd.

WM. J. BUCKLEY.  
Master of Carmarthenshire Foxhounds.

## "CHAMPION" ROCK DRILLS

Have all the latest improvements resulting from 19 years' practical experience in constant work. Unrivalled for efficiency and durability in Sinking Shafts, Driving Levels & Tunnels.



## THE CHAMPION ROCK-BORER AND AIR COMPRESSOR CO.

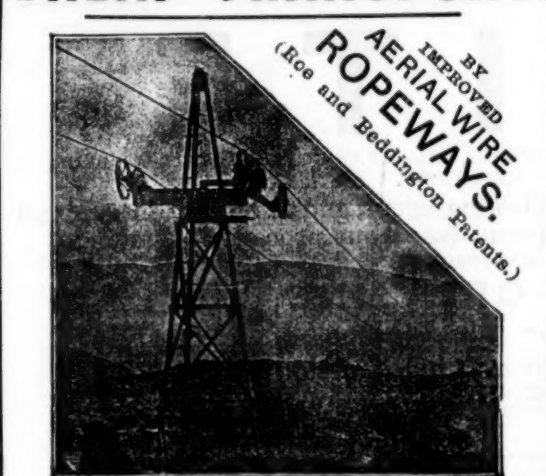
SOLE PROPRIETORS AND MANUFACTURERS,  
E. P. and H. P. VACHER,  
MAKERS OF ROCK DRILLS, AIR COMPRESSORS, TURBINES, WATER WHEELS, WATER MOTORS, RAMS AND OTHER MINING MACHINERY.  
63, Queen Victoria Street, LONDON, E.C.

Telegraphic Address: "TURNSCREW, LONDON."

## EL MINERO MEXICANO.

The Mining and Industrial Journal of Mexico. ESTABLISHED 1873. Published in the City of Mexico every THURSDAY, in the Spanish Language. Taken by Mine Owners, Capitalists, Manufacturers, Merchants, the richest and most liberal people, all over Mexico. THE BEST ADVERTISING MEDIUM. MEXICAN PATENT & TRADE MARK AGENCY, A, Independencia No. 1, City of Mexico. RICHARD B. CHISM, M.B., Editor and Proprietor.

## CHEAP TRANSPORT.



### Advantages over other Systems:—

Economy in Cost and Working. Simplicity of Construction with High-Class Material, Long Spans and Steep Gradients Overcome, Reduced Wear of Cables, and Few Supports.

Estimates, Pamphlets, & full Particulars on Application to the PROPRIETORS OF THE PATENTS: ROPEWAYS SYNDICATE, Limited. 150, Leadenhall Street, London, E.C. Telegrams: "ROPEWAYS, LONDON."

### ONLY GOLD MEDAL FOR ALLOYS. INVENTIONS EXHIBITION.

## "PHOSPHOR-BRONZE." (Cog Wheel Brand.)

The Best Alloys for all Wearing parts of Machinery, Bearings, &c.

BEWARE OF ALL IMITATIONS, & SPECIFY THE COMPANY'S MAKE.

BULL'S METAL, Ingots, Forgings, Castings, Stampings, Rods and Sheet. Specially adapted for Mining Work.

## The Phosphor Bronze Company (LIMITED).

87, SUMNER STREET, SOUTHWARK, LONDON, S.E.

## MACARTHUR-FORREST PROCESS.

TO MINE OWNERS AND OTHERS  
Having REFRACTORY GOLD ORES hitherto untreatable at a profit, the MACARTHUR-FORREST (PATENT) PROCESS OF GOLD EXTRACTION offers a solution of the difficulty.

The chief features of this Process are:—  
SIMPLICITY, ECONOMY IN WORKING, and SMALL COST of PLANT.

PROPRIETORS:—

## The Cassel Gold Extracting Co. (Ltd.)

Head Office—108a, Hope Street, Glasgow.

London Office—23, College Hill, Cannon Street, E.C.

Africa—The African Gold Recovery Co. (Ltd.), Johannesburg.

Australia—The Australian Gold Recovery Co. (Ltd.), 8, Post Office Chambers, Sydney, N.S.W., Charters Towers, Queensland, and Mr. Geo. S. Fowler, J.P., Adelaide.

United States—The Gold and Silver Extraction Co. of America (Ltd.), Denver, Colo.

Mexico—The Mexican Gold and Silver Recovery Co. (Ltd.), 2a, Calle de Providencia, No. 7, Mexico City, Mexico.

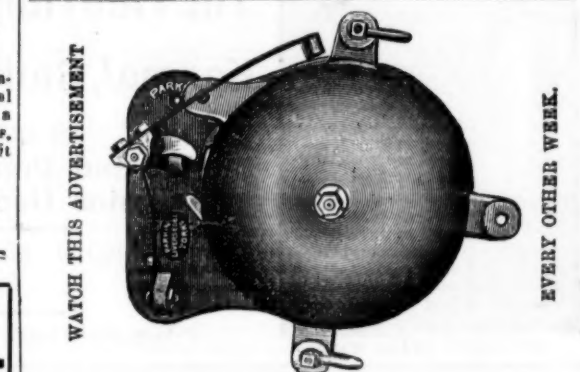
Chili—Mr. J. A. W. Murdoch, Calle Almendro, Valparaiso.

New Zealand—The Cassel Gold Extracting Co. (Ltd.), 8, Herald Buildings, Queen Street, Auckland.

Canada—Mr. W. Pellew Harvey, F.C.S., 717 and 719, Pender Street, Vancouver City, British Columbia.

The CASSEL GOLD EXTRACTING Co. (Ltd.) are manufacturers of CYANIDE, suitable for the MacArthur-Forrest Process.

For terms, apply at Head Office of the Company, 108a, Hope Street, GLASGOW.



These SIGNAL BELLS are the BEST and consequently CHEAPEST in the market.

All sizes from 4 in. to 12 in. for all purposes. All Fittings steel. No perceptible wear after years of work. Simple neat and good. Thoroughly reliable.

Prices and particulars—  
PARKIN, LIVERSEDGE, YORKSHIRE.

SOLE AGENTS FOR SCOTLAND:  
Messrs. ARCHD. BAIRD and SON,  
59-61, WATERLOO STREET, GLASGOW.  
Export Agent—Mr. STEPHEN HUMBLE, Junr., Emerson Street, Southwark, S.E.

## THE AUSTRALIAN MINING STANDARD

IS THE ONLY RECORD OF MINING, FINANCIAL, and ENGINEERING PROGRESS IN THE SOUTHERN HEMISPHERE. PUBLISHED WEEKLY. ILLUSTRATED. Subscription, 30s. per annum (payable in advance). Dr. E. D. PETERS, Jun., says:—"The Mining Standard is the best Mining Journal in the World, save one." THE AUSTRALIAN MINING STANDARD COMPANY, LIMITED. Printers and Publishers, SYDNEY AND MELBOURNE.

## THE ADELAIDE OBSERVER.

Mining men and others in all parts of the world, who wish to secure the most complete budget of Australian news, and particularly of Mining Intelligence, will do well to have THE ADELAIDE OBSERVER regularly posted to them. Special attention is given to Mining operations in Western Australia as well as in all other parts of Australasia. THE ADELAIDE OBSERVER, Price Sixpence. Posted abroad, 7s. 6d. per quarter, or £1 10s. per annum. HEAD OFFICE—GREENFELLS STREET, ADELAIDE, SOUTH AUSTRALIA. LONDON OFFICE—89, FLEET STREET. THE OBSERVER is a splendid medium for Advertisements of Mining Machinery and requisites. Advertisements received by all the principal London Agents or at the London address, given above.

## THE STAFFORDSHIRE ADVERTISER.

ESTABLISHED 1795.  
The Principal County Paper in the Midlands.  
Advertisers will find it the BEST MEDIUM for reaching superior class of readers over large area centred by Staffordshire fifth county in population and sixth in wealth.

Published at Stafford every SATURDAY (Price Twopence), and to be obtained at Euston and Principal Bookstalls between London Liverpool, and Manchester

## CORNISH POST AND MINING NEWS.

A HIGH-CLASS UNIONIST NEWSPAPER. Specially devoted to Cornish Mining, upon which it contains the fullest and most reliable information published. It is the only eight-paged newspaper printed in the Mining Division of Cornwall, ISSUED EVERY THURSDAY and SATURDAY, PRICE ONE PENNY.

The Cornish Post and Mining News Co. (Limited) East Charles Street, Camborne, Cornwall.



**A & Z DAW,**

11, QUEEN VICTORIA STREET, LONDON, E.C.

Patentees and Sole Manufacturers of

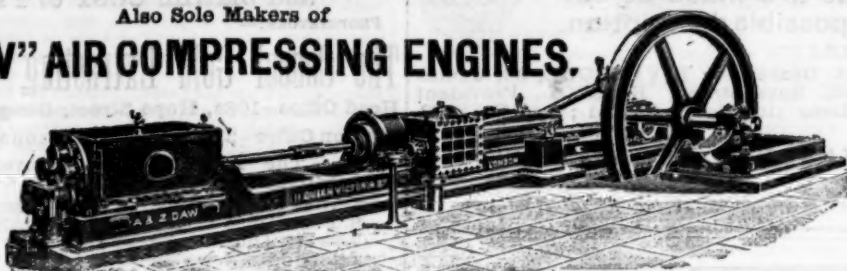
**THE "DAW" ROCK DRILLS,**

QUARRY BARS &amp; TRIPODS, &amp; IMPROVED TUNNEL COLUMNS.

Also Sole Makers of

**THE "DAW" AIR COMPRESSING ENGINES.**

Highest Award,  
International  
Exhibition of  
Mining and  
Metallurgy,  
London, 1890.



Highest  
Award  
and  
Medal,  
World's  
Fair,  
Chicago,  
1893.

Estimates for Rock Boring Plant and General Mining Machinery on Application.

Registered Telegraphic Address: "GULDNES, LONDON."

Al. A.B.C. 4th Edition, and Morse and Neil's Codes used.

CONTRACTS FOR ALL KINDS OF ROCK DRILLING UNDERTAKEN.



REGISTERED TRADE MARK.

**CABLE MILLS, OLDHAM ROAD, MANCHESTER.****THE FRICTIONLESS ENGINE PACKING CO.**

SOLE MAKERS OF

LIMITED.

Karmal, Railite, and Metallic Packings.

(OGDENS PATENT.)

MANUFACTURERS OF ALL KINDS OF

Engine and Pump Packings, Indiarubber Goods,  
Asbestos Goods, Hair and Cotton Belting.Highest Awards wherever Exhibited. Send for Price List  
and Testimonials.

Telegraphic Cable Address: "PACKLESS, MANCHESTER."

**TONITE**IS RECOMMENDED TO CONTRACTORS, MINERS, PIT SINKERS, QUARRYMEN, AND OTHERS, AS BEING  
THE SAFEST OF ALL EXPLOSIVES.TONITE is a most efficient and economical blasting agent, and is largely in demand.  
It is exempt from freezing and the consequent dangerous process of thawing.

THE COMPANY ALSO MANUFACTURE

**GELIGNITE, BLASTING GELATINE, &c.****DETONATORS**, Suitable for all Classes of Explosives.**ELECTRIC DETONATORS**, High or Low Tension.**ELECTRIC APPLIANCES**, of all Descriptions.**SAFETY FUSE.**Address—THE COTTON POWDER COMPANY (Limited),  
116, QUEEN VICTORIA STREET, E.C.**NEGRETTI AND ZAMBRA'S,  
SURVEYING & MINING INSTRUMENTS.**Theodolites, Levels, Circumferenters, Miners' Dials,  
Compasses, Drawing Instruments, Levelling Staves,  
Barometers, Thermometers, Air Meters, Binoculars,  
Telescopes, &c., &c.ILLUSTRATED PRICE LISTS AND ESTIMATES POST FREE TO ALL  
PARTS OF THE WORLD.**NEGRETTI & ZAMBRA,**Scientific Instrument Makers to Her Majesty the Queen and  
British and Foreign Governments.

38, HOLBORN VIADUCT.

BRANCHES: 45, Cornhill, and 123 Regent Street, London

**TURBINES.  
FACTS!**

Little Giant Turbine.

Unlike other Turbines,  
with from 12 to 24 water  
inlets to supply it with  
water, our **LITTLE GIANT**  
Wheel has one Vertical  
Gate only, so that no waste  
of water, power, and no  
stoppages takes place owing  
to small rubbish lodging  
in the gates as in other  
types of turbines.

FULL PARTICULARS SENT FREE.

**S. HOWES,** HYDRAULIC  
ENGINEER,  
64, MARK LANE, LONDON,  
AND AT SILVER CREEK, N.Y., U.S.A. E.C.

BREAKFAST-SUPPER.

**EPPS'S**

GRATEFUL-COMFORTING.

**COCOA**

BOILING WATER OR MILK.



EXTERIOR VIEW—Showing Crushing Head.

Manufacturers of Mining Machinery and complete Macadam Plants.

**GATES ROCK AND ORE BREAKER.**

Capacity in Tons of 2000 Pounds.

Size 0—2 to 4 tons per hour.	Size 3—10 to 20 tons per hour.	Size 6—30 to 60 tons per hour.
" 1—4 to 8 "	" 4—15 to 30 "	" 7—40 to 75 "
" 2—6 to 12 "	" 5—25 to 40 "	" 8—100 to 150 "

Passing 2½ in. ring, according to character and hardness of material.

GREAT SAVING IN POWER. Adjustable to  
any Degree of Fineness.The principle involved in this Breaker acknowledged to be the greatest success ever  
introduced into Stone Breaking machinery.Send for Catalogue, containing over 500 references of Contractors, Miners, Railway  
Companies, Cement Makers, etc.

By the use of this machine cubical road metal can be produced at a low cost.

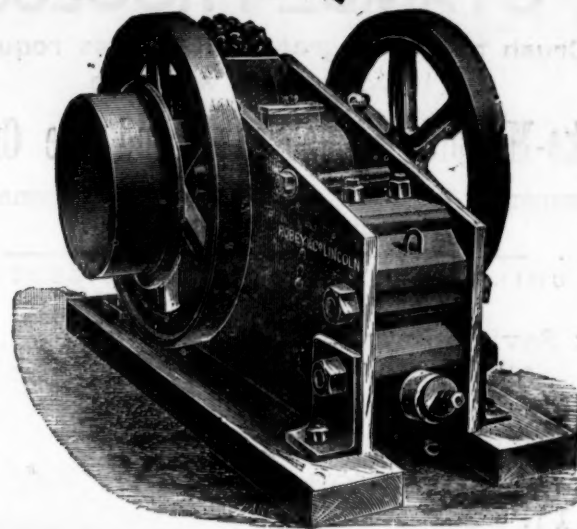
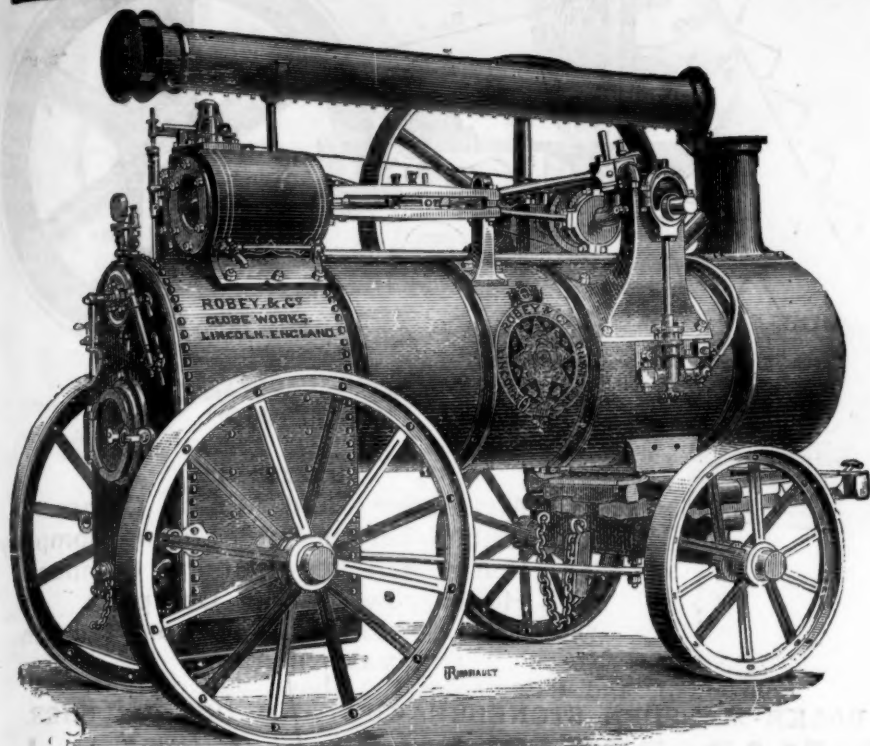
**GATES IRON WORKS (A)**73a, QUEEN VICTORIA STREET, E.C., LONDON, ENGLAND,  
136, Liberty Street, New York.

WORKS: 650, Elston Avenue, Chicago, U.S.A.

Improved Cornish Rolls & Screens.  
COMPLETE CYANIDE PLANTS.



# ROBEY & Co., LIMITED.



## IMPROVED STONE BREAKER AND ORE CRUSHER

For crushing Ores, Quartz, Road Metal, Railway Ballast, Cement, Phosphates, Coke, Coal, &c

## EXPANSION PORTABLE ENGINES

Possess the following advantages:—Great Strength; Extreme Simplicity of Design; First-Class Workmanship; Great Economy in Fuel; Ease of Management; Absolute Safety in Working; Great Power and Durability.

Also manufacturers of Portable Engines, Semi-Portable Engines, Robey Engines and Locomotive Boilers combined (both compound and simple) Vertical Engines High Speed Engines, Horizontal Fixed Engines (simple and compound) Sugar Mills, Locomotive, Cornish and Vertical Boilers, Winding Engines, Head Gears, Mine Pumps, Centrifugal Pumps, Patent Gas and Oil Engines, and every description of Machinery for Builders and Contractors.

**GLOBE WORKS, LINCOLN.**

The above illustrates the most simple form of Stone Breaker made, and has no equal for easy transport over bad roads or mountainous countries. Steel has been largely employed, and in the place of the usual heavy Cast-Iron Frame, a neat and much stronger Frame of rolled steel is used, with a saving of some tons in weight. The great depth of the sides gives it increased stiffness, and the materials of which the machine is constructed ensure great rigidity and thorough adaptability for heavy work.

The parts are few and simple, and thoroughly accessible for oiling adjusting, and cleaning, and the liability to breakage is reduced to a minimum.

The jaws are easily renewed, and are made of our own special mixture and treatment, rendering the face well suited for quartz. These jaws can be adjusted while the machine is running so as to reduce the material to any desired size, and are adapted for either cubing or crushing.

## SAFETY BLASTING IN COAL AND SHALE, ETC.

## SETTLE'S Patent GELATINE WATER-CARTRIDGE

NOBEL'S EXPLOSIVES COMPANY (Limited), Glasgow, having acquired from Mr. MILES SETTLE the Sole Patent Rights of his Water-Cartridge System of Blasting have now arranged to supply through their local Agents all the Appliances required in connection therewith.

### ADVANTAGES OF USING SETTLE'S PATENT GELATINE WATER-CARTRIDGE:

1.—SAFETY IN BLASTING. 2.—NO SMOKE. 3.—NO SPARK OR FLAME. 4.—NO FUMES. 5.—ALL COAL GOTTEN IN LUMPY CONDITION AND WITH A MUCH SMALLER PERCENTAGE OF SLACK THAN IN BLASTING WITH POWDER. 6.—GREAT SAVING OF COST OWING TO MORE EFFICIENT BLASTING, AND TO REDUCTION OF MANUAL LABOUR. 7.—SIMPLICITY OF THIS METHOD OF BLASTING.

Trained Experts will carry out experiments, and instruct Colliery Managers, Miners, &c., FREE OF CHARGE, on application to Nobel's Explosives Company (Limited), Glasgow, or to their Consulting Engineer.

The use of the WATER-CARTRIDGE is recommended by the Royal Commission on Accidents in Mines.

For full information apply to NOBEL'S EXPLOSIVES COMPANY (LIMITED), GLASGOW, or to H. ENFIELD TAYLOR, M.Inst.C.E., the Company's Consulting Engineer, 15, Newgate Street, Chester.

MANUFACTURERS OF GELATINE-DYNAMITE, DYNAMITE, DETONATORS, ETC. ETC.

## EASTON, ANDERSON, & GOOLDEN, Limited,

3, Whitehall Place, London, S.W.,

AND Erith Iron Works, Erith, Kent.

JOHANNESBURG ... F. W. STOKER, Esq. AUSTRALIA ... MESSRS. HARROLD BROS. TASMANIA ... SALISBURY FOUNDRY CO.

MANUFACTURERS OF

MINING MACHINERY of every description ELECTRICAL HAULING and WINDING PLANTS. ELECTRICAL PUMPING PLANTS. ELECTRICAL ROCK DRILLS.

Plants have recently been supplied to the following amongst other Mines:—

THE CHAMP D'OR DEEP LEVEL GOLD MINING COMPANY.  
THE CASSEL COLLIERY COMPANY.  
VILLAGE MAIN REEF GOLD MINING COMPANY.  
THE GOLD FIELDS DEEP.  
METROPOLITAN GOLD MINING COMPANY.  
MEYER AND CHARLTON GOLD MINING COMPANY.  
ROODEPOORT DEEP LEVEL GOLD MINE COMPANY.

MAY CONSOLIDATED GOLD MINING COMPANY.  
GEORGE GOCH GOLD MINING COMPANY.  
SALISBURY JUBILEE JOINT MILL.  
MOODIES GOLD MINING EXPLORATION COMPANY (LIMITED).  
WITWATERSRAND GOLD MINING COMPANY.  
FERREIRA GOLD MINING COMPANY.  
NIGEL GOLD MINE COMPANY.

Sole Manufacturers of the NIAGARA CRUSHER, PULVERISER, AND CONCENTRATOR. The most Successful MACHINE in the WORLD. A 5-foot QUARTZ MACHINE will do more and better Work than five head of STAMPS, Costs half the Price. Uses half the Power. Repairs do not exceed 2½ per cent, per annum on first cost.

Any Ore however Refractory is speedily reduced to a Uniform Power of any desired fineness, while the CONCENTRATOR SEPARATES THE VALUABLE ORE FROM THE MATRIX WITHOUT EXTRA POWER. For full particulars of the NIAGARA PULVERISER, apply to the NIAGARA PULVERISER SYNDICATE (LIMITED), 3, WHITEHALL PLACE, S.W.

EASTON, ANDERSON, and GOOLDEN, Limited, 3, Whitehall Place, S.W.

Telegrams: EGYPTIAN, LONDON.

Telephone: 3995.



# MARSDEN'S PATENT DRY CRUSHER AND PULVERIZER.

Specially applicable for use in connection with the

## CYANIDE PROCESS.

Will Crush to any Degree of Fineness required, and in connection with the

Blake-Marsden Stonebreaker and Ore Crusher,

is far superior to Rolls, and is the most economical and efficient Plant extant.

THE CHIEF ADVANTAGES OF THIS SYSTEM OF REDUCTION CONSIST IN

Great Saving in first Cost of Plant.

Avoidance of the FORMATION of SLIMES.

SMALL COST OF MAINTENANCE.

SMALL POWER REQUIRED TO DRIVE.

SIMPLICITY OF CONSTRUCTION.

Can be seen in Operation by appointment at the Works,

SOHO FOUNDRY, LEEDS.



ADOPTED BY

The Afrikaner Gold Mining Company.  
The Lisbon-Berlyn Gold Mining Company.  
The Pen-y-Bryn Lead Mining Company.  
The Hodbarrow Mining Company.  
Messrs. J. C. Lanyon and Co., Redruth.  
AND MANY OTHERS.

Sole Maker and Patentee of the above, and of the  
BLAKE-MARSDEN STONEBREAKER AND ORE CRUSHER.

**H. R. MARSDEN, Soho Foundry, Leeds.**

## CURTIS'S & HARVEY, Gunpowder Manufacturers.

Makers of every Description of

### BLASTING POWDER & PELLETS, BLACK & SMOKELESS.

**E. S. M.:** A Superior Quality Blasting Powder, with a Minimum of Smoke and Flame, and when Detonated as Effective as High Explosives; Loose or in Pellets.

**AMBERITE:** A Safe, Powerful, and Handy Smokeless Blasting Explosive, containing no Poisonous Ingredients, and emitting no Noxious Fumes; in Cartridges of various Diameters.

**ELECTRONITE:** A FLAMELESS SAFETY EXPLOSIVE for Coal Mining, specially adapted for use in Fiery and Dusty Mines.

An expert will be sent if necessary; and full particulars as to method of Using, Testimonials, Price, &c., can be had on Application to our Office,

74, LOMBARD STREET, LONDON, E.C., OR ANY of OUR AGENTS.

### DELTA METAL

FOR ALL ENGINEERING WORK.  
STRONGER AND MORE DURABLE THAN STEEL.

Specially Adapted for MINING WORK  
on account of its very high Resistance to Corrosion.

**DELTA**

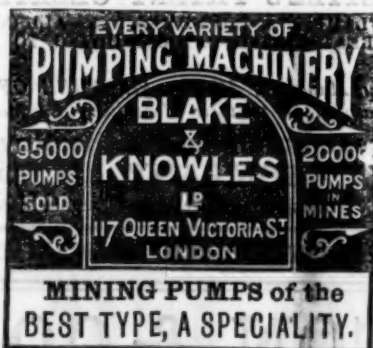
CAST, FORGED, STAMPED, ROLLED, DRAWN.

For full Particulars and Prices apply to

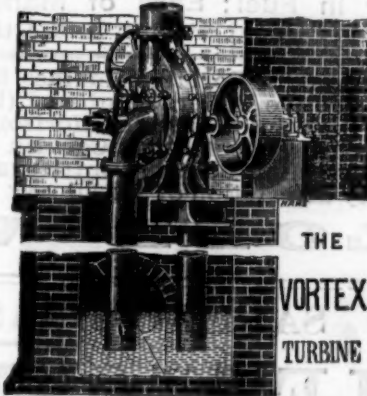
THE DELTA METAL COMPANY (Ltd).  
110, Cannon Street, London, E.C.

Telegrams:—"DELTA," London.

Telephone No. 11292.



PRIZE MEDALS (London, 1862. Paris, 1867. Calcutta, 1884.)  
**G. GILKES & Co., LIMITED, KENDAL.**



Illustrated Descriptive Pamphlets, with numerous Testimonials supplied on application.

Self Contained, Easily Fixed, Economical, Efficiency Guaranteed, Regular in Speed

LARGELY USED FOR ORE CRUSHING AND ELECTRIC LIGHTING, AND MILLS OF ALL DESCRIPTIONS.

**FONTAINE CO., PERFORATING WORKS, AIX-LA-CHAPELLE, GERMANY.**  
(ESTABLISHED 1857.)



PERFORATED PLATES FOR Sieving and Sorting purposes, round, square, and taper holes. Separation and Cleaning of Grain. Drying Hops, Tobacco, Chicory, Bones, Manures, Breweries, Chemical Works, Cement Works, Corn Mills, &c. Specialties for Sugar Manufacturers. Copper Sheets perforated with our elongated Conical Holes. Filterpress Plates, &c.

We produce our Perforated Sheets by very powerful machinery, perforating at one stroke the whole breadth of the sheet; we can, therefore, supply imperishable Ware at very Low Prices. We also furnish all Machinery and Tools of every description for Perforating Works.

PRICES ON APPLICATION.

TELEGRAMS: TUCKS LONDON.

# TUCKS

## INDIARUBBER, LEATHER, AND ASBESTOS GOODS.

## GENUINE PACKING

IS ONLY MANUFACTURED BY

### TUCK AND CO., LIMITED.

116, CANNON STREET, LONDON;

And at LIVERPOOL, CARDIFF, NEWPORT, BARRY,

SOUTHAMPTON, DUBLIN & MELBOURNE.

WRITE FOR SAMPLES & PRICES